June 18, 1956

Tubular Train: Trend or Transition? . . . p.36

RAILWAY AGE

WORKBOOK OF THE RAILWAYS

THE INDUSTRY'S ONLY WEEKLY NEWSMAGAZINE

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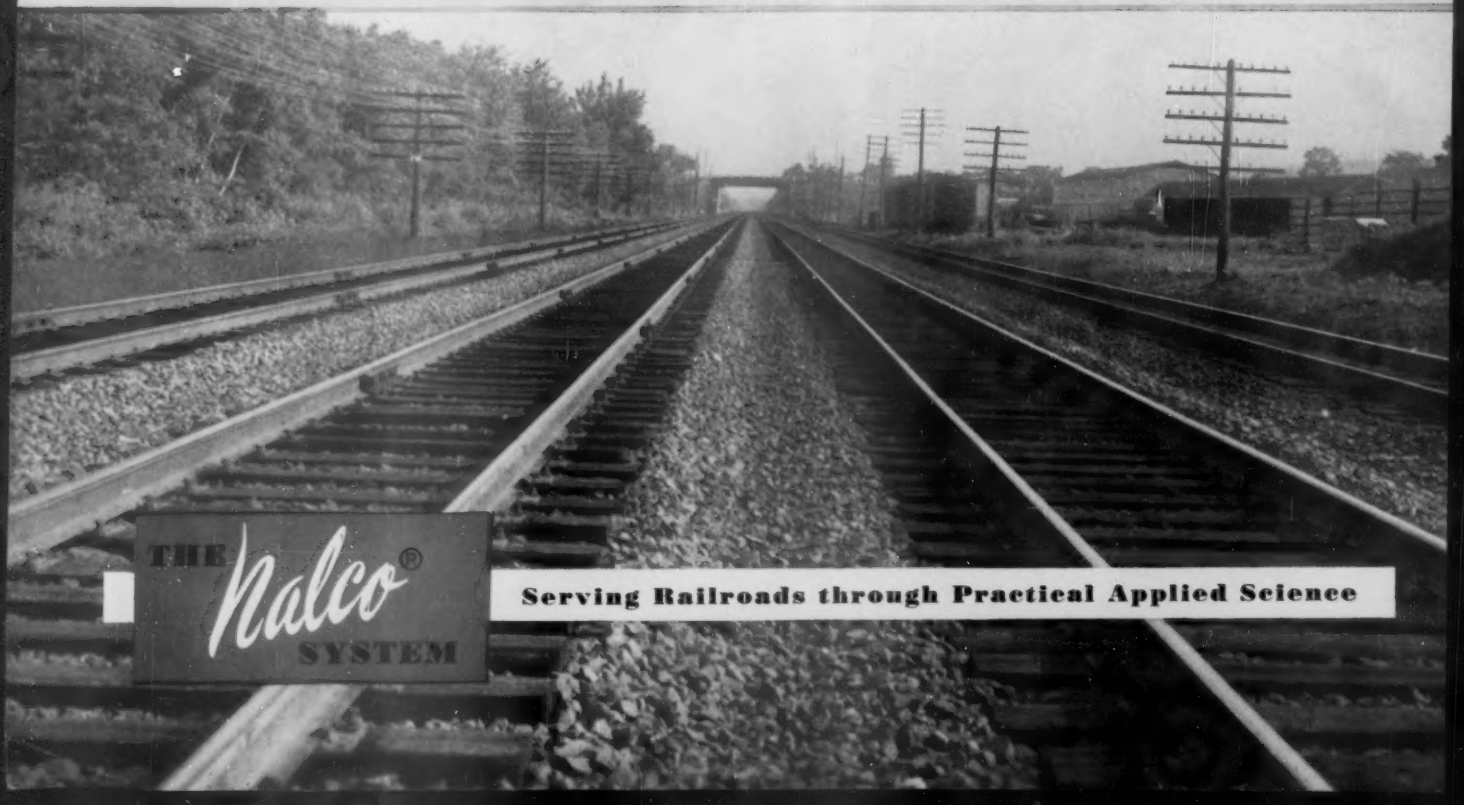

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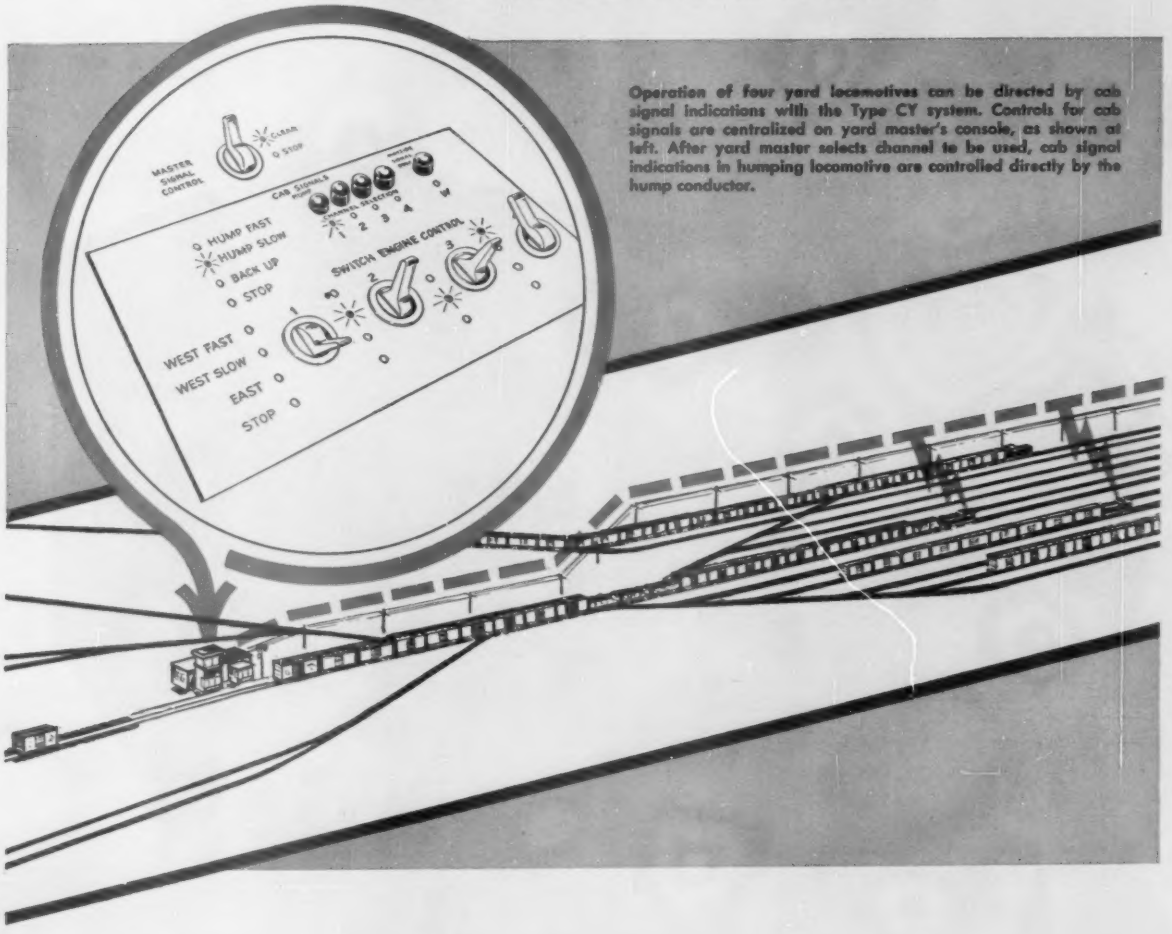

Operation of four yard locomotives can be directed by cab signal indications with the Type CY system. Controls for cab signals are centralized on yard master's console, as shown at left. After yard master selects channel to be used, cab signal indications in humping locomotive are controlled directly by the hump conductor.

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Workbook of the Railways

Vol. 140, No. 25
June, 18, 1956

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Week at a Glance

"Modern approach" to passenger business . . .

. . . is how the New York Central describes the procedure which has led to plans for wholesale modernization of its St. Lawrence Division passenger services. Basically, the "modern approach" calls for a joint effort by the railroad and its customers in working out joint problems. . . . p.7

The "fair-share" test . . .

. . . ICC decisions in competitive rate cases "have the undeniable effect of apportioning traffic," the AAR insists in a statement filed with the House Interstate Commerce Committee. Decisions involved are those in which the ICC has condemned compensatory rates and used its minimum rate power to prescribe differentials. . . . p.8

FORUM: Most objectionable aspect . . .

. . . of railroad rate regulation has been the ICC's frequent refusal to permit reductions in rates on the allegation that the proposed new rates, even though profitable, would take away too much traffic from rival transport media. . . . p.35

PRR's lightweight "tubular" train . . .

. . . built by Budd, made a trial run between Philadelphia and Newark, N. J., on June 13. The 574-passenger train goes into New York-Washington, D.C., revenue service June 24. This latest entry in the low-slung, cost-cutting coach-train competition, called the "Pennsy Keystone," combines many conventional components with other concepts only recently accepted in the railroad industry. . . . p.36

Unusual cost-saving program . . .

. . . recently carried out on the Norfolk & Western involved carving channels at four strategic locations, which permitted elimination of eight bridges that would have needed major repairs during the next ten years. The channel changes—in which modern grading equipment was a key factor—compared with expense of the bridge repairs, will produce a net saving of about $1.3 million. . . . p.41

AAR Mechanical Division and Electrical Section . . .

. . . will hold their annual meetings in Chicago's Hotel Sher-

Current Statistics

Operating revenues, four months	
1956	$3,413,453,838
1955	3,104,423,778
Operating expenses, four months	
1956	$2,652,535,732
1955	2,371,029,566
Taxes, four months	
1956	$361,835,961
1955	328,525,317
Net railway operating income, four months	
1956	$313,059,632
1955	322,371,153
Net income, estimated, four months	
1956	$236,000,000
1955	241,000,000
Average price 20 railroad stocks	
June 12, 1956	100.82
June 14, 1955	98.91
Carloadings revenue freight	
Twenty-two weeks, 1956	15,784,153
Twenty-two weeks, 1955	14,827,931
Average daily freight car surplus	
Wk. ended June 9, 1956	10,689
Wk. ended June 11, 1955	10,950
Average daily freight car shortage	
Wk. ended June 9, 1956	5,155
Wk. ended June 11, 1955	9,925
Freight cars on order	
May 1, 1956	137,436
May 1, 1955	17,930
Freight cars delivered	
Four months, 1956	20,972
Four months, 1955	10,013
Average number of railroad employees	
Mid-May 1956	1,061,972
Mid-May 1955	1,052,939

RAILWAY AGE IS A MEMBER OF ASSOCIATED BUSINESS PUBLICATIONS (A.B.P.) AND AUDIT BUREAU OF CIRCULATION (A. B. C.) AND IS INDEXED BY THE INDUSTRIAL ARTS INDEX, THE ENGINEERING INDEX SERVICE AND THE PUBLIC AFFAIRS INFORMATION SERVICE. RAILWAY AGE, ESTABLISHED IN 1856, INCORPORATES THE RAILWAY REVIEW, THE RAILROAD GAZETTE, AND THE RAILWAY AGE GAZETTE. NAME REGISTERED IN U. S. PATENT OFFICE AND TRADE MARK OFFICE IN CANADA.

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Week at a Glance CONTINUED

man, June 26-28. An exhibit and meeting of the Railway Electric Supply Manufacturers Association will run concurrently. . . . p.43

Request to buy a "pig in a poke" . . .

. . . is the description applied by many railroaders to the AAR's recent releasing for letter ballot the proposition to prohibit use of loose journal-box packing and to adopt as standard practice the use of approved designs of journal lubricating devices. . . . p.45

$20 billion will be spent . . .

. . . for railroad equipment and facilities over the next decade. W. Arthur Grotz, Western Maryland president—and a railroader with a banking background—offers some thought-provoking ideas on where that huge sum will come from. . . . p.47

BRIEFS

Ban on slow railroading . . .

. . . became effective June 13. The ICC announced it would begin on that day to enforce Service Order 910, which prohibits railroads from willfully delaying movements of loaded freight cars. The commission's action followed dissolution of the temporary stay obtained by lumber shippers who took the order to court.

Lightweight trains could be better . . .

. . . Illinois Central President Johnston recently told the New York Society of Security Analysts when asked to comment on new equipment trends. Those he's ridden, he said, "are not a success," showing tendencies to rough-riding, operational failures and less economy than is claimed for them.

An end to industrial switching . . .

. . . by railroads is foreseen by Fred C. Foy, Koppers Company president, who expects the motor truck's future may be primarily in collection and distribution, rather than in long-distance hauls. Huge yards might be converted for industrial development, while 1,000-ton units with two-men crews moving from plant to plant could replace present-day trains, he thinks.

Engineer's Rear View Mirror

The Type "B" Brake Pipe Flow Indicator is much like a rear view mirror—it reflects what is going on in the brake pipe of his train—ofttimes a mile and a half away.

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COMPANY
AIR BRAKE DIVISION WILMERDING, PA.

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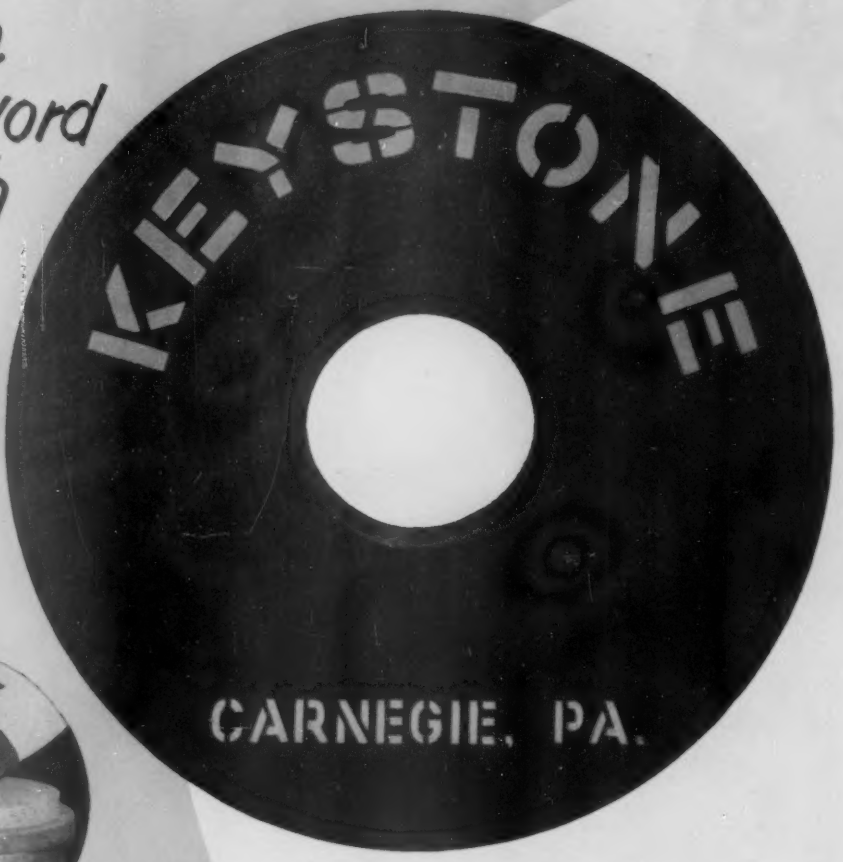

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NEW YORK CENTRAL ADOPTS . . .

"Modern Approach" to Passenger Business

Railroad goes to its customers to find out what they want, as basis for proposed revision of St. Lawrence Division passenger services

Basing its action on what it terms the "modern approach"—of working out joint problems and interests jointly with its customers—the New York Central is planning a wholesale modernization of its St. Lawrence Division passenger services.

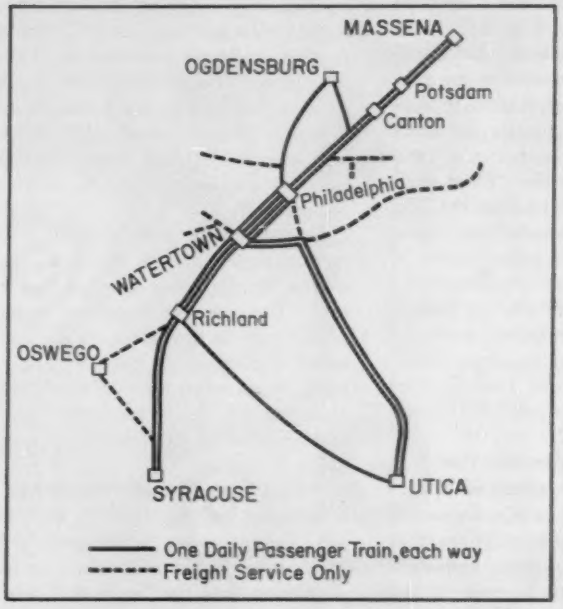
This action arose from informal discussions with business and civic leaders in the territory—first, about the economic facts which necessitate some service adjustments; and second, about the desire for railroad passenger service, as determined by a comprehensive survey of travel habits and needs of the people living or having businesses in the area.

First Step in the proceeding, at Watertown, N. Y., last December, was a luncheon meeting of some 50 leading business men, public officials, press representatives and railroad officers from cities and towns on the entire division. Prominent in this group were the traffic managers of important local industries. At the first meeting, the Central's territorial passenger service was carefully explored, and a simple but detailed questionnaire concerning travel requirements was distributed.

Additional copies of the questionnaire were subsequently sent out by mail, principal distribution being made through industrial concerns to their traveling employees. The questionnaires themselves were stamped self-mailers, with a preprinted return address, and were so worded that most answers could be given simply by crosses or check marks.

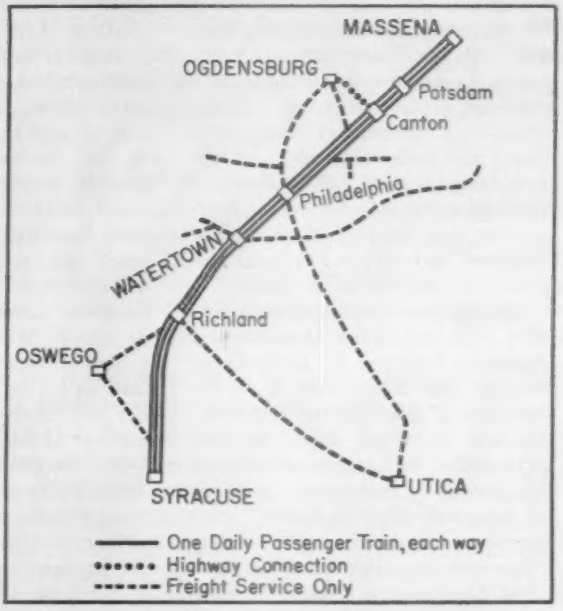
The modernization finally proposed, and now before the New York Public Service Commission, was worked out on the basis of these questionnaires. It, in turn, was fully explained at a second Watertown luncheon meeting in May which was

PRESENT . . .



PASSENGER SERVICE on the New York Central's St. Lawrence division "resembles a spider web, with trains running in all directions along the web, but not always where the fly is." It is being operated at an out-of-pocket deficit of about $375,000 per year, and an overall loss of more than $1,500,000. To find a way to cut this loss, Central held two semi-public meetings to explain its problems; used questionnaires to determine travel needs, habits, desires. Result is a carefully worked out plan for . . .

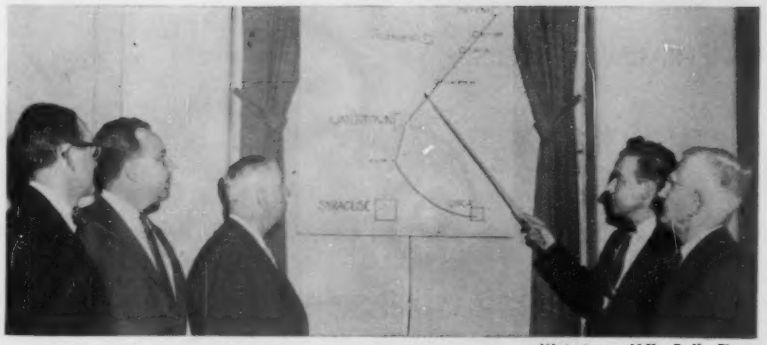
PROPOSED . . .



A MODERNIZED SERVICE. Trains would be concentrated on the division's "main line" between Syracuse and Massena, where questionnaires show the market lies. Sleeping cars between New York City and Massena and Ogdensburg would be handled via Syracuse instead of Utica, with the present Ogdensburg car terminating at Watertown. Saving of about 170,000 train-miles per year, plus increased patronage anticipated from modernized service, is expected to eliminate the out-of-pocket deficit.

attended by many of the same men who participated in the December session.

Behind the railroad's action in taking the people of the affected territory fully into its confidence, in informing them of its problems and its proposals, and in basing those proposals on the expressed desires of the people themselves, is the hope that opposition to the adjustments will be held to a minimum—and that the modernized service will improve traffic and revenue. The method, as worked out at the Watertown meetings, is something in the nature of a laboratory experiment, which, if successful, will be tried out by the NYC in other areas where service adjustments also offer hope of cutting passenger service costs and improving revenue by locating the service with respect to potential markets.



Watertown, N.Y., Daily Times

PROPOSED MODERNIZATION of passenger service on the New York Central's St. Lawrence division, and the reasons why such modernization is desirable, were discussed with the territory's business leaders at a meeting in Watertown, N.Y., by, left to right, John S. Gallagher, Jr., NYC director of passenger research; J. J. Danhof, Jr., superintendent of the St. Lawrence, Adirondack and Ottawa divisions; Edward J. Gibbons, general manager, Central's Eastern district; and George M. Casady, director of passenger service economics. Chairman of this and a previous Watertown meeting was Lewis K. Silleox, honorary vice-chairman of the New York Air Brake Company (extreme right), who brought the railroad officers and community leaders together for their joint discussions.

AAR Insists ICC Uses "Fair-Share" Test

Supplementary Langdon presentation on Cabinet Committee report says commission decisions result in apportionment of traffic—Lyne gives views on principles which should govern rate-making, urges more competitive freedom

Pressing the case for their rate-freedom program, the railroads have filed with the House Interstate Commerce Committee a supplementary statement which insists that ICC decisions in competitive rate cases "have the undeniable effect of apportioning traffic." The decisions involved are those wherein the commission has condemned compensatory rates and used its minimum rate power to prescribe differentials.

The supplementary statement was filed on behalf of the Association of American Railroads by Jervis Langdon, Jr., who is chairman of the Association of Southeastern Railroads. He had previously made an oral presentation before the subcommittee, headed by Representative Harris of Arkansas, which is holding hearings on proposed legislation to implement recommendations of President Eisenhower's Cabinet Committee on Transport Policy and Organization (Railway Age, May 14, p. 11).

Another supplementary statement was filed on behalf of the Federation for Railway Progress by its chairman, James G. Lyne, who is also editor of Railway Age. Mr. Lyne, too, had previously made an oral presentation at the subcommittee's hearings (Railway Age, May 7, p. 8).

Answer to Truckers—Mr. Langdon's original statement was the railroads' principal presentation in support of what they consider the heart of the Cabinet Committee's rate-freedom proposals—the "three shall nots," which would prevent the ICC from considering the effect of a proposed rate on a competing mode of transportation. The supplementary Langdon statement was addressed principally to presentations made on behalf of American Trucking Associations by its counsel, John R. Turney and Clyde B. Aitchison, former member of the ICC.

Mr. Langdon's assertion that ICC decisions have the effect of apportioning traffic came in his discussion of Turney-Aitchison contentions that the commission has never employed a fair-share-of-the-traffic test—it has undertaken only to provide "fair opportunities to compete." Mr. Langdon said:

"It makes no difference how it is expressed. The point remains that the ICC does in fact take into account 'the effect of the rates on the competing mode,' and that is what an important recommendation of the Cabinet Committee is aimed at. The ICC should not concern itself with producing artificial competitive balances and 'equal opportunities to compete'. . . . Any such attempt is economically unsound and contrary to the public interest. The ICC should regulate railroad rates in the light of railroad conditions; and truck rates in the light of truck conditions—just as it is required under existing law to regulate water carrier rates in the light of water carrier conditions."

Supporting the assertion with further analyses of the decisions involved, Mr. Langdon also had this to say: "The complete emptiness of the ATA's case in opposition to the proposed legislation is well illustrated when its witnesses try to discredit the examples of ICC 'umbrella' rate-making cited in the railroad presentation."

"Bad Guess" and "Nonsense"—Included in the further analysis were references to "a bad guess" by Mr. Turney in his undertaking to assign other than the "umbrella" basis for one of the decisions; and to several ICC citations of a decision which Mr. Aitchison said had "become moot" and stood "without being a precedent." "So much nonsense" was what Mr. Langdon said of an implication he found, in the

(Continued on page 10)

RAILWAY MARKET OUTLOOK THIS WEEK

a RAILWAY AGE Workbook Page

Carloadings Up.—Loadings of revenue freight in the week ended June 9 totaled 787,075 cars, the Association of American Railroads announced on June 14. This was an increase of 67,866 cars, or 9.4%, compared with the previous week; an increase of 5,137 cars, or 0.7%, compared with the corresponding week last year; and an increase of 89,492 cars, or 12.8%, compared with the equivalent 1954 week.

Loadings of revenue freight for the week ended June 2 totaled 719,209 cars; the summary, compiled by the Car Service Division, AAR, follows:

REVENUE FREIGHT CAR LOADINGS

For the week ended Saturday, June 2

District	1956	1955	1954
Eastern	109,739	109,929	94,942
Allegheny	140,256	135,774	111,272
Pocahontas	62,278	58,655	44,615
Southern	122,921	121,489	109,107
Northwestern	118,483	116,319	102,682
Central Western	111,230	112,650	99,085
Southwestern	54,302	54,535	50,611
Total Western Districts	284,015	283,504	252,378
Total All Roads	719,209	709,351	612,314
Commodities:			
Grain and grain products	46,261	43,971	39,514
Livestock	5,654	5,567	5,633
Coal	121,899	120,836	94,413
Coke	12,658	11,145	7,146
Forest Products	43,953	41,850	38,715
Ore	84,593	77,621	69,793
Merchandise l.c.l.	52,124	56,766	51,919
Miscellaneous	352,067	351,595	305,181
June 2	719,209	709,351	612,314
May 26	788,297	785,589	689,292
May 19	778,997	769,879	681,967
May 12	777,606	752,645	677,540
May 5	770,558	736,904	647,954
Cumulative total, 22 weeks	15,784,153	14,827,931	13,765,287

New Equipment

CARS

► *Louisville & Nashville.*—Ordered 500 70-ton pulpwood cars, ACF Industries; estimated cost $4,100,000; delivery expected February-April 1957.

► *Railway Express Agency.*—Ordered 500 50-ton refrigerator cars, General American; cost $10,600,000; delivery of cars, to be equipped to operate in passenger-train service at speeds up to 100 mph, expected to begin in mid-1957.

► *Maine Central.*—Ordered 20 70-ton covered hopper cars, Pullman-Standard; estimated cost $173,000; delivery expected April 1957.

LOCOMOTIVES

► *Illinois Central.*—Will order an additional 70 diesel-electric locomotive units next year; anticipates 100% dieselization in 1958.

► *Rock Island.*—Ordered 10 GP-9 road switchers, Electro-Motive, for July 1957 delivery.

New Facilities

► *Canadian National.*—Constructing new car-service building at Charlottetown, P.E.I.; 50 by 15 ft concrete block structure will replace present wooden building; to be completed in July; CNR also has ordered equipment from General Railway Signal Company for installation of Syncroscan remote control to consolidate five interlockings at Hamilton, Ont.

► *Chesapeake & Ohio.*—Ordered equipment from General Railway Signal Company for installation of 80 miles of centralized traffic control between Walkerville Jct., Ont., and Blenheim.

► *New Haven.*—Through Fairbanks, Morse & Co., has ordered equipment from General Railway Signal Company for installation on locomotives of 17 sets of cab signal equipment.

► *Southern Pacific-Texas & New Orleans.*—New construction projects, costs in parentheses, include: Enlarging freight switching yard at Avondale, La., by constructing 13,760 ft of new track, a new office building, and roadway and drainage facilities ($279,716); rearrange existing facilities for inspection and servicing diesel locomotives at Houston, Tex. ($203,144); construct 15,850 ft of track at Jeanerette, La., including 13,700-ft spur to serve Patoutville Sugar Refinery ($99,594).

► *St. Louis-San Francisco.*—Ordered equipment from General Railway Signal Company for installation of yard automation, including switching and automatic retarder control, in Tennessee Yards, Memphis, Tenn., and Cherokee Yards, Tulsa, Okla.

► *Texas & Pacific.*—Ordered equipment from General Railway Signal Company for installation of absolute permissive block signaling on 108 miles between Shreveport, La., and Alexandria.

(Continued from page 8)
Aitchison statement, that the railroads, having embraced the "fair-share" test in some of their own pleadings, were estopped from questioning it.

The "obvious motive" of the truckers, as Mr. Langdon saw it, was to remain in a position to handle high-valued commodities "by having rail rates frozen, in specific instances, at levels higher than the traffic will bear to move by rail." The truckers, he added, "really seek protection against competition of rail rates, even where they are compensatory to the railroads and non-discriminatory as among shippers."

In the latter connection, Mr. Langdon also assured the committee that enactment of the "three shall nots" would not affect "in the slightest degree" the power of the ICC to prevent discrimination in rate making."

Chairman Lyne of FRP filed his statement to answer several questions asked by committee members when he made his oral presentation. Among such questions was one asking Mr. Lyne to outline his ideas regarding principles to be observed in railroad rate-making. His answer included the following:

1. The principle of charging "no more than the traffic will bear" needs to be modified to recognize the fact that a lower "ceiling" is required than the shipper's "ability to pay." The "value of service" is as valid a consideration in rate-making today as it ever was—the only difference being that a different yardstick has to be used, i.e., the price at which the shipper can get the service from some other agency than the railroad.

2. To avoid the kind of regulation that will divert traffic into uneconomic methods of movement and make the nation's cost of transportation higher than it need be, legislators and regulators should interfere little, if at all, with the price competition of one type of transportation with another type.

3. There is no reason why regulation of rate competition as between regulated carriers of the same type should not continue, wherever continuing need for such regulation exists.

4. There is no useful purpose served in forbidding a common carrier to adjust rates to meet competition (if its costs permit), on the grounds that meeting the competition would destroy some traditional pattern of common carrier rates.

5. There can be no economic objection to "volume" or "trainload" rates if the expense to the carrier is less for the quantity shipments than for those in smaller volume.

6. There is little danger of "destructive competition" arising if different types of transportation are permitted to compete freely on the basis of their comparative costs.

7. Railroad rates which are above out-of-pocket costs and which will recover traffic not now moving by rail, will reduce the burden of "overhead" now borne by "captive" traffic—not increase the burden on the "captive" traffic, as erroneously alleged.

8. If carriers of different types are permitted and encouraged to compete freely with each other on a basis of their comparative costs, they will inevitably learn more about their own and their competitors' costs than they know now. The result may well be—not just that they will take traffic from each other, but also that they will yield traffic to each other, where study and experience gives them the knowledge that a competitor has a decided cost advantage.

Forwarder's Program—At hearing sessions subsequent to those reported in Railway Age of June 4, page 8, the subcommittee received oral presentations from numerous interested parties, including the Freight Forwarders Institute, which was represented by Giles Morrow, its president and general counsel; and Fred Carpi, vice-president, Freight Service and Sales, Pennsylvania, who spoke for a group of eastern railroads opposing the institute's legislative program. Mr. Morrow's statement was mainly in support of that program, although he did comment briefly on some of the Cabinet Committee's recommendations.

Heads New Transport Agency

Brig. Gen. Edmund C. R. Lasher (above), has been named executive director of the newly formed Military Traffic Management Agency in the Defense Department. The agency will supervise all military transportation within the United States for all the armed forces. Gen. Lasher, whose last assignment was as assistant chief of transportation for traffic, will manage all commercial freight and passenger transportation used by the services.

The forwarder program is embodied in three bills, which are H.R.9548, H.R.9771, and H.R.9772. The first would authorize forwarders to utilize railroad "piggyback" services under contract-rate arrangements, the second would authorize forwarders to control carriers, and the third would require those entering the forwarding business to obtain a permit from the ICC, meanwhile eliminating the provision forbidding the commission from denying an application for forwarder rights solely on the ground that the proposed operation would be in competition with another forwarder.

The hearings were expected to continue into the present week. They had previously been scheduled to end June 15.

Court Asked to Uphold "Right-to-Work"

The Santa Fe has asked the Texas Supreme Court to rule for the plaintiffs in the Sandsberry "right-to-work" case, regardless of the recent decision of the U. S. Supreme Court in the Nebraska suit. The Texas action represents issues not presented before the higher court, the railroad says.

Supplemental arguments were filed recently in Austin, Tex. Attorneys for Sandsberry and the other employees involved, and the Santa Fe, asked the state court to reaffirm a lower court injunction against the International Association of Machinists under the Texas "right-to-work" law.

The brief holds that the U. S. Supreme Court opinion in the Nebraska

case (Railway Age, May 28, p. 12), requires only the payment of dues, initiation fees and assessments under the Railway Labor Act, while in the Sandsberry case, which has been before the Texas Supreme Court since May 1955, the contract demands compulsory and full union membership.

The Santa Fe's argument holds that, first, the union shop contract demand in the Sandsberry case is beyond the terms of the Railway Labor Act amendment; second, the injunction issued by the trial court is only against the signing of the union shop contract, making membership a prerequisite; and third, the U. S. Supreme Court has ruled that the amendment to the Railway Labor Act does not require compulsory and full union membership as demanded in the case in the Texas court.

PRR Expands Its "TrucTrain" Service

Daily all-rail "TrucTrain" service between points on the Pennsylvania and major distribution centers in the Southwest was begun June 13. Involved are flatcar movements of the road's own truck trailers, used for pick-up and delivery in terminal areas, at rates competitive with those of other carriers.

The new service permits through shipments in both directions between Pittsburgh, Mingo Junction, Ohio, Columbus and Dayton, in the east, and Little Rock, Pine Bluff, Tulsa, Oklahoma City, Shreveport, Lake Charles, Dallas, Fort Worth, Houston, San Antonio, El Paso and other southwestern cities, C. S. Van Gunten, manager of PRR TrucTrain sales, said.

Under the new through rates, trailers are interchanged between the PRR and the Missouri-Kansas-Texas, the Frisco, the St. Louis Southwestern and the Santa Fe. Through rates for piggyback shipments between New York and Philadelphia and the same southwestern points are being formulated for publication late this summer, Mr. Van Gunten said.

For trailers ready at Columbus by 6 p.m., the new service offers second-morning delivery at Little Rock, Pine Bluff and Tulsa, and third-morning delivery at Oklahoma City, Shreveport, Dallas and Houston. Trailers ready at Pittsburgh by 8:30 p.m. will reach Little Rock, Pine Bluff and Tulsa for third-morning delivery, and will be available for fourth-morning delivery at the other points named. Eastbound trailers from Little Rock and Shreveport will arrive for second-morning delivery at Columbus and third-morning delivery at Pittsburgh. Those from the other cities listed will be available for third-morning delivery at Columbus, fourth-morning delivery at Pittsburgh.

Cuba Enters T-O-F-C Fold

Cuba's first piggyback service was ready for operation following recent delivery to the Consolidated of Cuba of 10 t-o-f-c flat cars built by the Rail & Industrial Equipment Co. at Landisville, Pa. E. M. Harman, R&IE president, said he expects piggybacking to be adopted by other Latin American countries.

The one best spot to catch more railroad customers for '56...

No Happy Birthday issue, this one! RAILWAY AGE's *Centennial Number* is timed to the forward march of the railroads...as urgently needed as the vast capital improvement program sweeping our whole rail transport system. Here is an issue RR management is waiting for impatiently ...a look back to yesterday's achievements, a frank appraisal of the industry today, a bold-visioned view of tomorrow's opportunities. They'll find it invaluable for plans, policy-making and purchasing decisions. You'll never find a more lasting, rewarding place to sell the men who run the railroads. *Published in September...closing for advertisers August 1st.*

Centennial Number

RAILWAY AGE (ABC-ABP)

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ICC Upheld in Ogden Gateway Case

The United States Supreme Court has upheld the Interstate Commerce Commission's Ogden Gateway decision which gave the Denver & Rio Grande Western a partial victory over the Union Pacific.

The commission decision, made in 1953, requires the UP to participate with the Rio Grande in joint rates over through routes, via Ogden, Utah, on a few commodities moving to and from the Northwest. The decision resulted from a Rio Grande complaint which sought to have the commission force the gateway wide open by requiring the UP to participate in joint through rates on all traffic moving that way between "Colorado common points" and points east thereof, and points in Utah north of Ogden and in Idaho, Montana, Oregon and Washington. (Railway Age, Feb. 2, 1953, p. 12).

The case came up to the Supreme Court on UP and D&RGW appeals from lower-court rulings which were made in federal district courts at Denver and Omaha. The Denver court, holding that through routes via Ogden existed and thus the gateway was open, remanded the case to the commission for establishment of reasonable joint rates. The Omaha court held that the commission went too far, because the evidence justified prescription of through routes and joint rates only as to shipments stopped at D&RGW points for in-transit services.

Also involved were appeals by states and their public utility commissions in UP and D&RGW territories. These states took differing positions, some supporting one road and some the other. Altogether there were six cases, disposed of in one decision by the Supreme Court, which had them docketed as Nos. 117 to 119, inclusive, and 332 to 334, inclusive.

The Supreme Court decision, announced by Justice Black, reversed the Denver court, directing it to dismiss the complaint involved. It affirmed the decision of the Omaha court insofar as that court had upheld the commission, reversing its refusal to sustain the commission order in its entirety. Justices Frankfurter and Harlan dissented.

In upholding the commission, the court's majority said it was not unmindful of the force of arguments made by the UP and those supporting it. "It is entirely possible," the court added, "that the commission could have made findings contrary to those it did make. But on the whole we are unable to say that the commission did not strike a fair balance in finding that the evidence required the establishment of these through routes and joint rates."

Justice Frankfurter's dissent noted that the court was dealing with a provision of law (that which protects railroads against being short-hauled) which "the commission has long considered undesirable," but has failed to get repealed. Encouragement should not be given by the courts to disregard of that Congressional policy, he continued, adding:

"It is my view that even though evidence may be found in the record to support a portion of the order, the commission did not support the portion on that basis but, on the contrary, appears to have justified the whole order on considerations that collide with Congressional policy. The proceedings should therefore be returned to the commission and the order ought not to be sustained in whole or in part."

Justice Harlan said he agreed with the Frankfurter statement, except that he would have affirmed the Omaha court's ruling in its entirety, thus sustaining a more limited commission order than that now upheld.

NP President Receives Statesmanship Award

Robert S. Macfarlane, president of the Northern Pacific (left), receives Seattle University's 1956 statesmanship award from the Very Rev. Albert A. Lemieux, S. J., president of the University. Presentation was made in Seattle June 5. The award is given annually for outstanding contributions to the strength and growth of American enterprise.

Coal Roads Join Plan To Promote Coal Exports

Coal-hauling railroads have joined with the coal industry and the miners' union in the formation of a corporation to "promote the export coal trade on the broadest possible basis."

This was announced by Walter J. Tuohy, president of the Chesapeake & Ohio, one of the interested railroads, in a June 13 address at the annual convention of the National Coal Association in Washington. He called the venture an "unprecedented partnership."

The newly-formed corporation is American Shipping, Inc., which is capitalized at $50 million. "Its first proposal is to enter immediately into the ocean shipping business by acquiring ships of its own and placing

them in the export coal trade," Mr. Tuohy said. He also said that the "two largest railroads which originate coal for export," recognize their "obligation to provide an ample supply of coal cars for loading, to maintain facilities for dumping, and to give good service at reasonable rates.

Taylor's Routing Power Continued

ICC Service Order No. 562 has been modified by Amendment No. 8 which set back the expiration date for another year—until May 25, 1957.

Under the order, Director Charles W. Taylor of the commission's Bureau of Safety and Service is commission agent with power to authorize diversion and rerouting of freight cars to meet emergency conditions.

N.Y. RR CLUB ANNOUNCES EIGHTH ESSAY CONTEST

The New York Railroad Club has announced its eighth consecutive yearly essay contest. First prize again will be $750; second prize, $500; and third prize, $250.

Suggested subjects are: Explore the technical feasibility and costs of service improvements designed more nearly to place rail service on a par with truck service, with a view to disclosing an approach to the economics of service improvements; how to improve utilization of the freight-car fleet, with a view to improved car distribution, car turnaround, and increased return on investment in cars; explore and appraise the economic feasibility of possible adjustments of equipment, service and rates to restore rail competitiveness for shipments weighing between 5,000 and 25,000 lb; what railroads can do to improve recruiting, selecting and training railroad (including management) personnel, to meet industry's present severe competition for superior manpower; suggest changes in rates and service to improve railroad traffic volume and net earnings, with contestant's views on improving the competitive position of railroads.

Contestants are not limited to the suggested topics; but if they wish to submit an essay on another topic, written approval should first be obtained from the club's contest committee. Entries and inquiries should be addressed to John Burry, executive secretary of the club, 30 Church street, New York 7, N.Y. Essays must be submitted on or before next October 1.

ICC Still Apportioning Traffic

Continuing its fair-share-of-the-traffic approach in competitive rate cases, the Interstate Commerce Commission recently condemned a compensatory rail rate with a finding that it was "lower than necessary to meet the competition" of barge-rail routes. The commission's decision, in I&S No. 6388, was a report on reconsideration by Division 2, which reversed itself, having previously found the rail rate lawful.

Traffic at stake was pig iron moving from Rockwood, Tenn., to Milwaukee, Wis., and West Allis. It amounts to 1,000 tons a month, and has been moving solely over barge-rail routes for some time. The barge-rail cost is $8.8135 per gross ton, composed of $6.64 for drayage at origin and movement by barge to Chicago or Joliet, plus a local rail rate of $2.1735 beyond.

The all-rail rate to Milwaukee and West Allis was $12.305, and to Chicago and Joliet, $11.04. The condemned rate was $6.65, a proportional from Rockford to Chicago and Joliet. Combining it with the local rate ($2.1735) beyond those points produced a total of $8.8235, one cent higher than the total barge-rail charges.

Then commission had before it evidence indicating that the rail rate would yield $340 per car and 64.9 cents per car-mile; and that the latter would exceed the car-mile expenses of the railroads involved by 9.1 cents to 41.5 cents.

"The per-car yield would exceed the average per-car revenue for 1953 on pig iron of $152.22 within the United States," the commission said, adding: "The rate proposed appears to be compensatory."

Then came the condemnation on the basis of the division's present determination that the rate, being "lower than necessary," constitutes "an unfair and destructive competitive practice, in contravention of the national transportation policy." The division's original report included a finding that the rate "would not result in unfair or destructive competition."

The present report headed into a reversal with this comment: "Upon further consideration of the record, we are persuaded that the inferior barge-rail service and much higher minimum which exist here necessitate a rate materially lower than over competing all-rail routes if any substantial portion of this traffic is to move over the water route."

The majority report represents the view of Commissioners Winchell and Murphy. The dissent of the division's other member, Commissioner Freas, was noted.

Labor Would Help Draw Top People

Labor and management must cooperate to "attract young people of top quality to the railroad industry," Michael Fox, chief, Railway Employees Department, AFL-CIO, told a railroad "workshop" at the recent New York annual meeting of the American Society of Training Directors.

"The top level youth of America is not being encouraged to come into the industry," Mr. Fox said, adding that "we ought to do everything we can to make America railroad conscious."

Stating that in the changeover from steam to diesel power "labor worked with management to solve the problems that we encountered," Mr. Fox called on railroads to "invite labor's participation at all levels" in future expansions of the industry.

"We must keep abreast of the times. If we fall behind, it will be a threat to our national economy, to our national security. How do we go about this? Encourage all types of technical, scientific and educational programs for all classes," in addition to involving labor cooperation, Mr. Fox said.

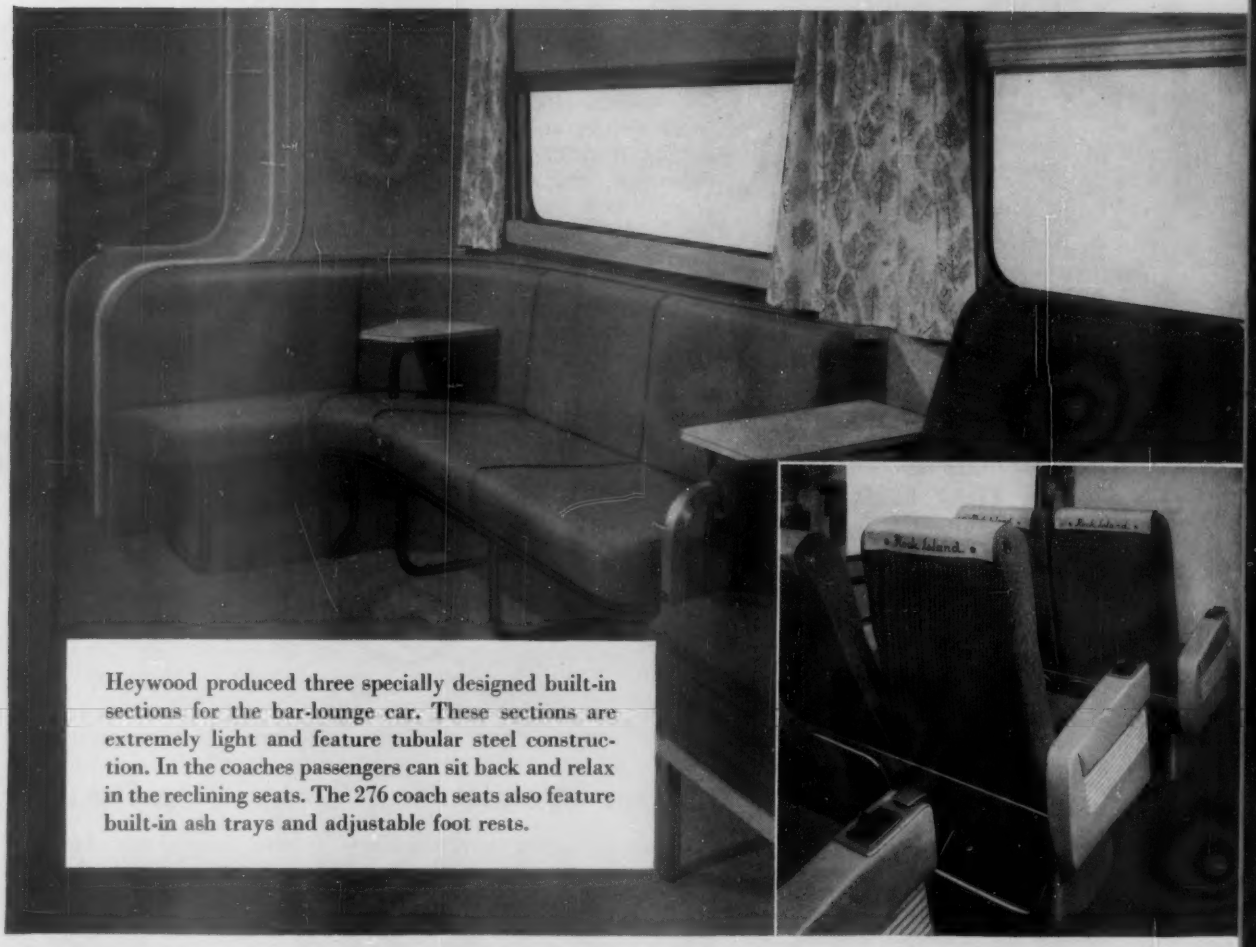
Directing his comments to personnel people, Mr. Fox called for reexamination of some hiring practices, noting that he has been surveying job application forms used by railroads.

"We find some things there are prehistoric," he said. "Some invade civil rights. These should be examined carefully, because many times you chase away people who might be good employees."

Mr. Fox also advocated continua-

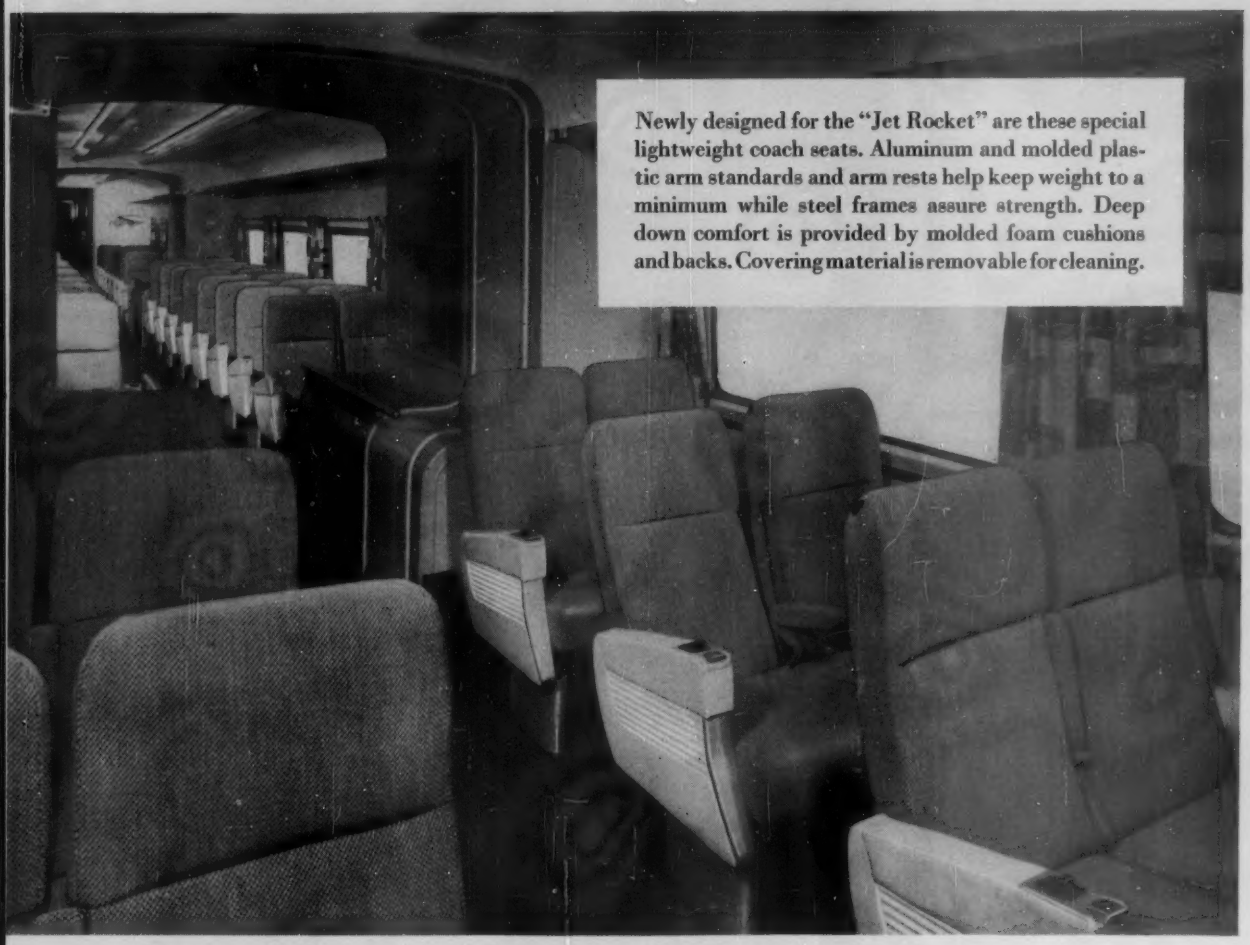
(Continued on page 54)

HEYWOOD-WAKEFIELD IS FIRST ON THE FIRST LIGHTWEIGHT



Heywood produced three specially designed built-in sections for the bar-lounge car. These sections are extremely light and feature tubular steel construction. In the coaches passengers can sit back and relax in the reclining seats. The 276 coach seats also feature built-in ash trays and adjustable foot rests.

IN LIGHTWEIGHT SEATING TRAIN IN REGULAR SERVICE



Newly designed for the "Jet Rocket" are these special lightweight coach seats. Aluminum and molded plastic arm standards and arm rests help keep weight to a minimum while steel frames assure strength. Deep down comfort is provided by molded foam cushions and backs. Covering material is removable for cleaning.

Rock Island's Talgo-type "Jet Rocket" cars were developed and built by American Car and Foundry Division of ACF Industries, Inc.

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Questions and Answers

Of current interest to the Transportation Department

Can — and should — standards for measuring yard and terminal efficiency be established . . .

?

(This subject has been discussed briefly in these columns before. Now available is a report by a committee of the American Association of Railroad Superintendents which it seems to me deserves wide publicity.—The following questions are taken from the report.—G.C.R.)

CONDUCTED By G. C. RANDALL, district manager, Car Service Division (ret.), Association of American Railroads, this column runs in alternate weekly issues of this paper, and is devoted to authoritative answers to questions on transportation department matters. Questions on subjects concerning other departments will not be considered, unless they have a direct bearing on transportation functions. Readers are invited to submit questions, and, when so inclined, letters agreeing or disagreeing with our answers. Communications should be addressed to Question and Answer Editor, Railway Age, 30 Church Street, New York 7.

Yes–according to AARS committee

"The committee forwarded to several railroads a questionnaire in order to obtain a sampling of present methods in determining costs and efficiency . . . . In general the following uniform practices are used with but few exceptions.

"1. Some type of measurement in cost and efficiency is followed in practically every yard. This method varies to some extent, but in most cases the unit represents cars, from which a good productivity figure is derived and cars are transposed into cost per day by various methods. . . .

"2. It was significant that few roads reported means of measuring and controlling hidden costs; means of measuring and currently controlling overtime; or means of determining business lost through inability of yards to supply service. . . .

"A re-evaluation of some of our yardsticks will have to be made; and, appropriately, the question of service versus cost of providing that service must be reconciled. The committee realizes that it cannot present a definite formula as a solution . . . . [But] we will present some of the standards that might be acceptable and assist in increasing terminal efficiency. This in turn will have a direct bearing in the controlling of cost.

"Railroad operations in general, and terminal operations in particular, are continuous 24 hours, seven days per week. In this respect they are closely related to other continuous process industries such as blast furnaces, power and light plants, etc. It follows that standards must be set up on this basis. It is recommended that:

"1. Each yard be given a comprehensive scientific study in which every car moved and every type of movement is recorded and timed. From this a standard can be developed for each type of yard activity as well as the terminal as a whole.

"2. These standards should be in basic units of time and cost such as minutes, hours, dollars per car, and so forth. After these standards have been established, the time element involved in arriving at the productivity and cost for the previous day's production must be accomplished so as to be available the following morning. Therefore, it follows that the terminal manager must be staffed properly to provide this information.

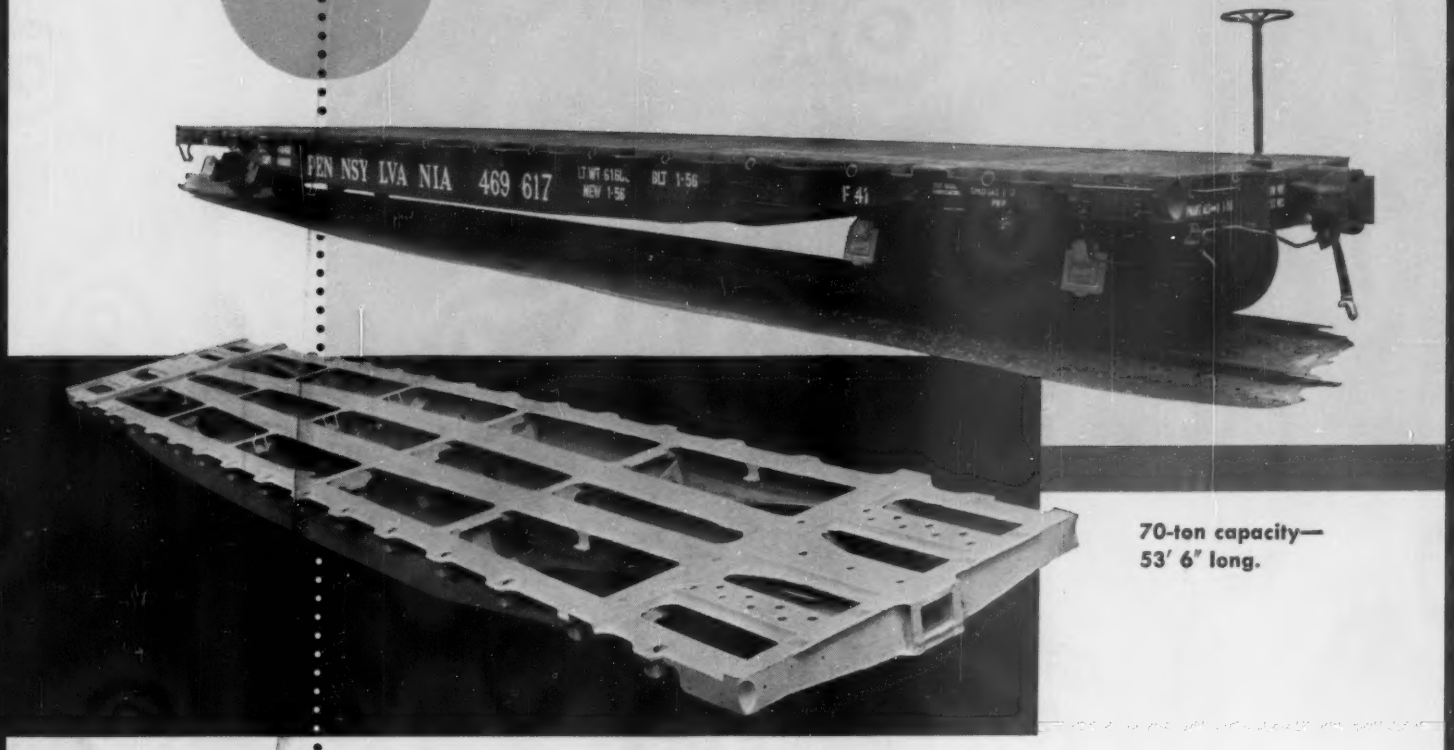
"3. As yard improvements are made terminal managers should adjust their standards so that the inherent financial benefits through capital expenditures are recognized.

"4. A practical 'yard speed' should be established, this to take into account not only time consumed from arrival of train until its departure, but also the placement, release, and disposition of equipment loaded or unloaded by industries within the terminal.

"5. A definite program dealing with the training and education of terminal supervisors should be set up by management, this to include training in policy and the overall objectives on any given railroad. It is now recognized that everything is accomplished through people. This committee charges that if terminal supervision is not made acquainted with the aims and desires of management, then proper standards for measuring yard and terminal efficiency can never be accomplished.

"In conclusion it must be pointed out that modernization of terminal facilities has lagged far behind progress in signaling, roadway, and in the operation of the main line. We hurry trains on the main lines to arrive at terminals and wait. There is inefficiency in almost every terminal. It is true that some railroads have made definite progress in the modernization of their terminals; however, these are but few in number. . . ."

look at the record...



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The well designed cast steel underframe permits better distribution of metal with uniform strength throughout, eliminating stress concentration. Minimum weight is assured.

Thousands of flat cars with cast steel underframes in service on 15 leading railroads are proving their exceptionally long maintenance-free life and the sound economy of the investment they represent.

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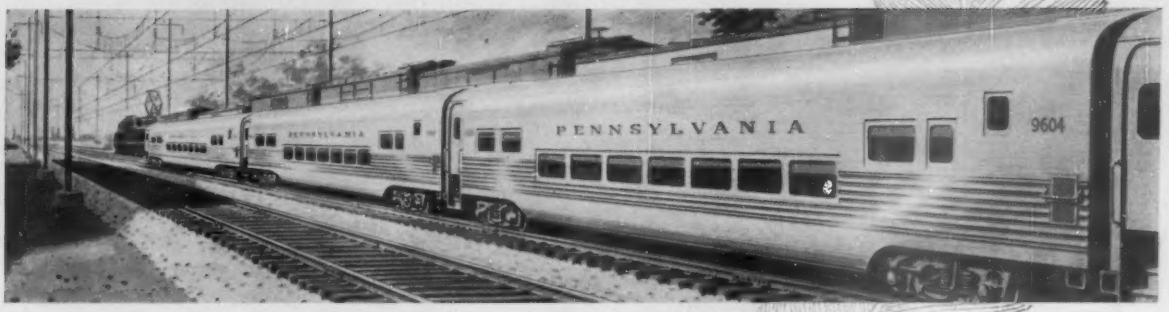

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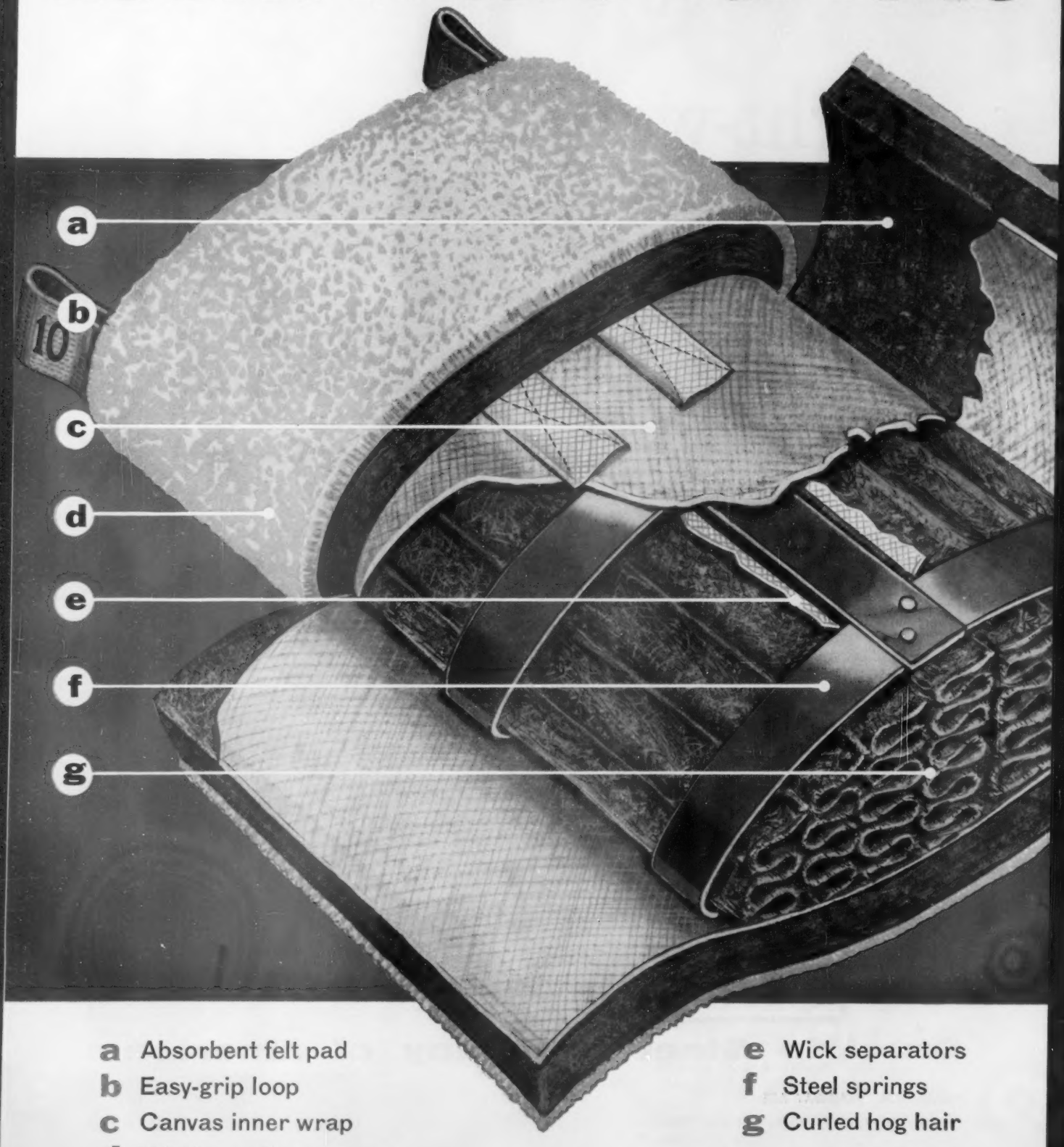

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b Easy-grip loop
c Canvas inner wrap
d Wicking-action cover
e Wick separators
f Steel springs
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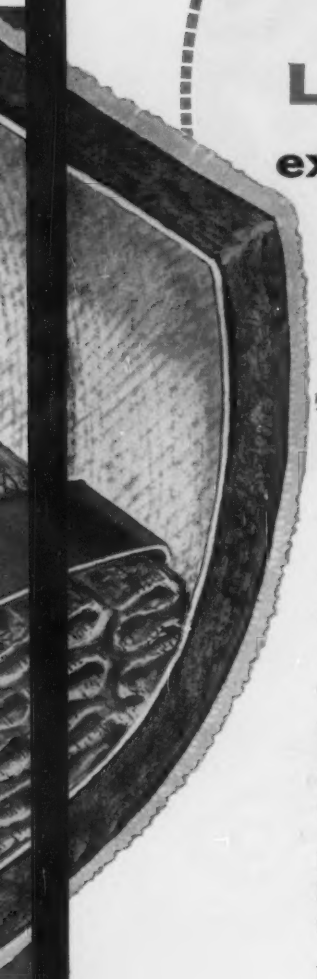

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The tough, cotton outer jacket has been especially selected for its high wicking action—will not glaze—is lint-free.

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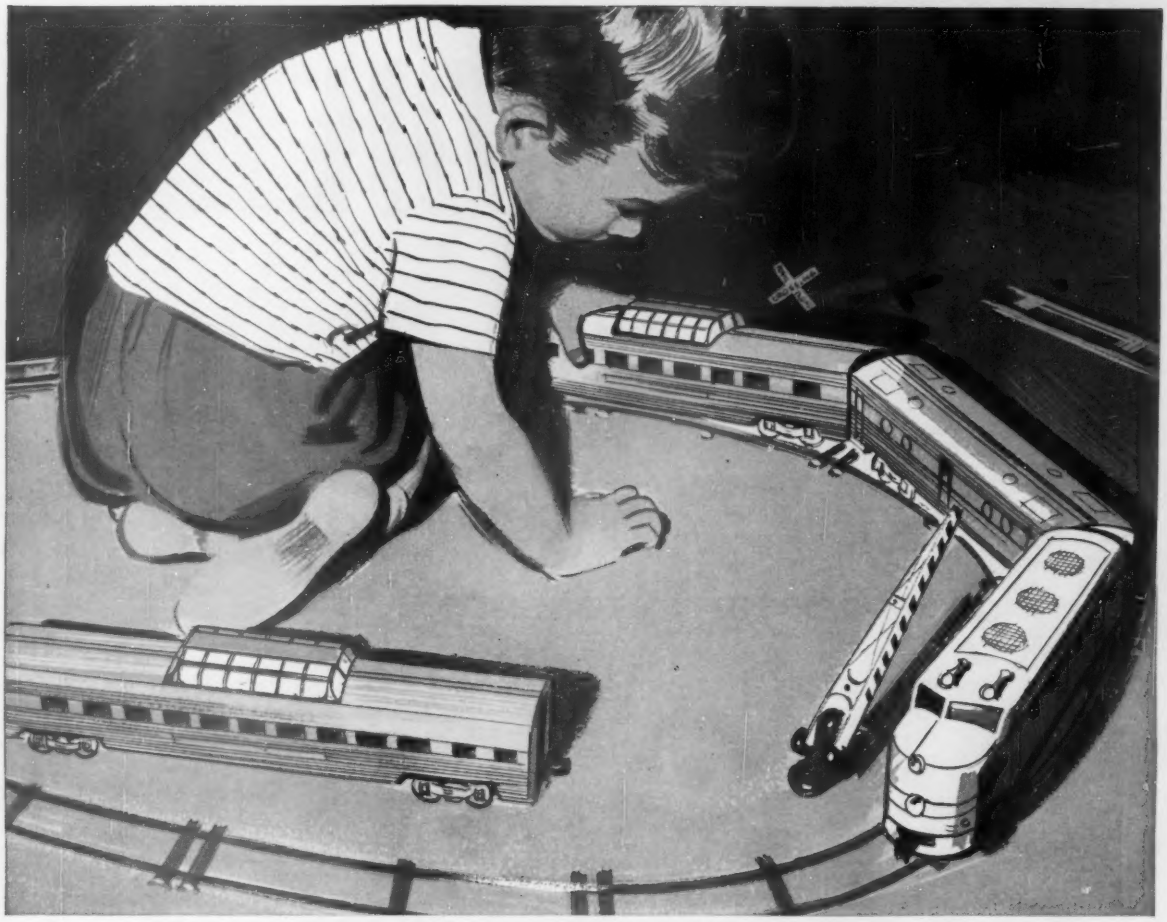

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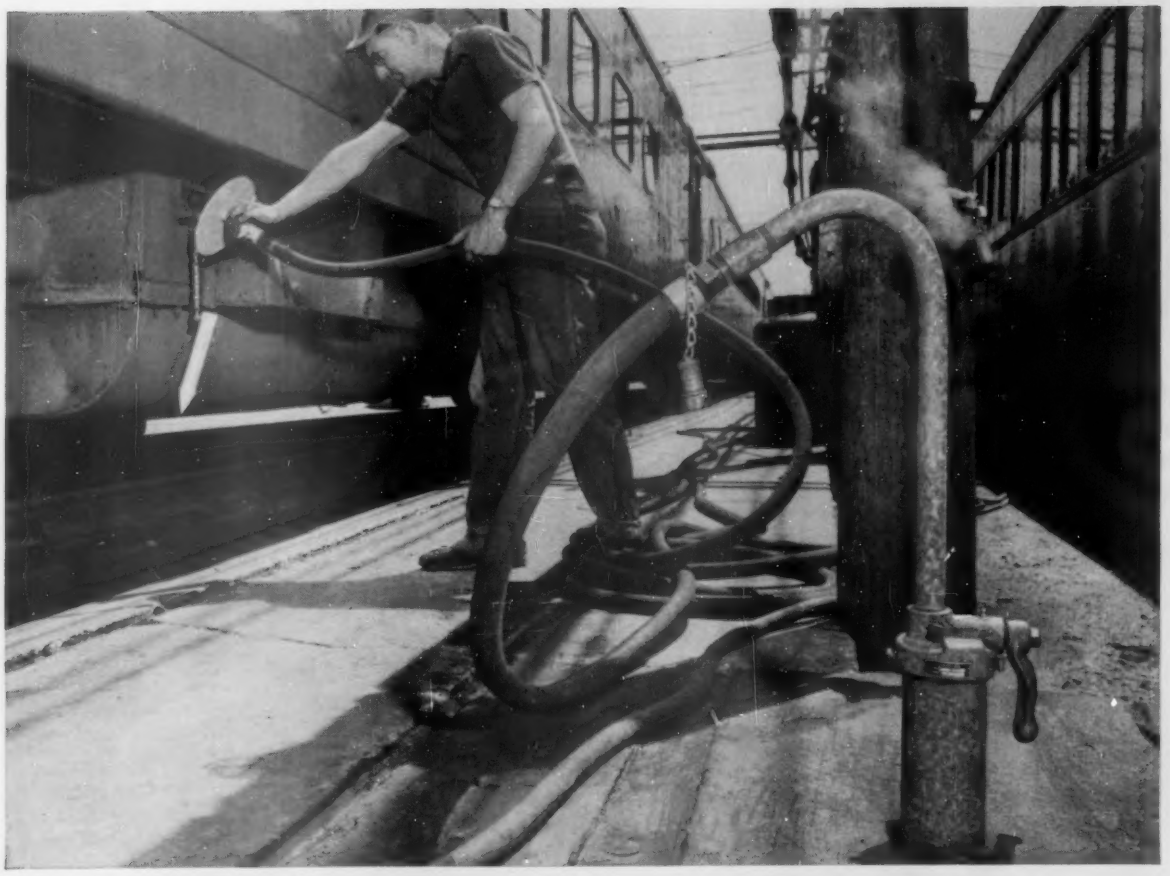

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What about the water supply for your diners and passenger cars . . . is it being contaminated by surface and sub-soil pollution that enters through your station or yard hydrants?

If pollution is a problem in your yards, it's time to change to CRANE Improved No. 840 Frostproof Hydrant. Making the change-over can be far less costly than you think.

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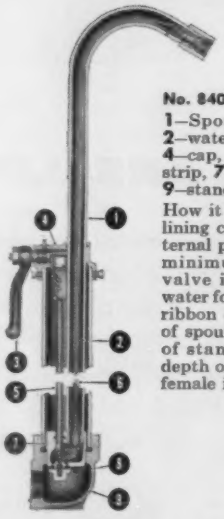
Crane's Improved No. 840 Hydrant is *frostproof!* Its superior, patented inner construction (shown right) assures free-flowing, dependable service in coldest weather. For complete details, write Crane Co., General Offices: 836 S. Michigan Ave., Chicago 5, Ill. Branches and Wholesalers serving all areas.



No. 840 Improved Frostproof Hydrant

1—Spout—with female coupling; **2**—water tube, **3**—operating handle, **4**—cap, **5**—valve stem, **6**—separator strip, **7**—valve body, **8**—disc holder, **9**—standpipe housing.

How it operates: elastic water tube lining contracts after each use. Internal plastic separator keeps ice to minimum—a thin ribbon. When valve is opened again, incoming water follows separator strip, forcing ribbon of ice out of spout. Height of spout above ground, 30"; height of standpipe above ground, 12"; depth of bury, 3, 4 and 5 ft. Size of female inlet, 1¼"; outlet, 1".

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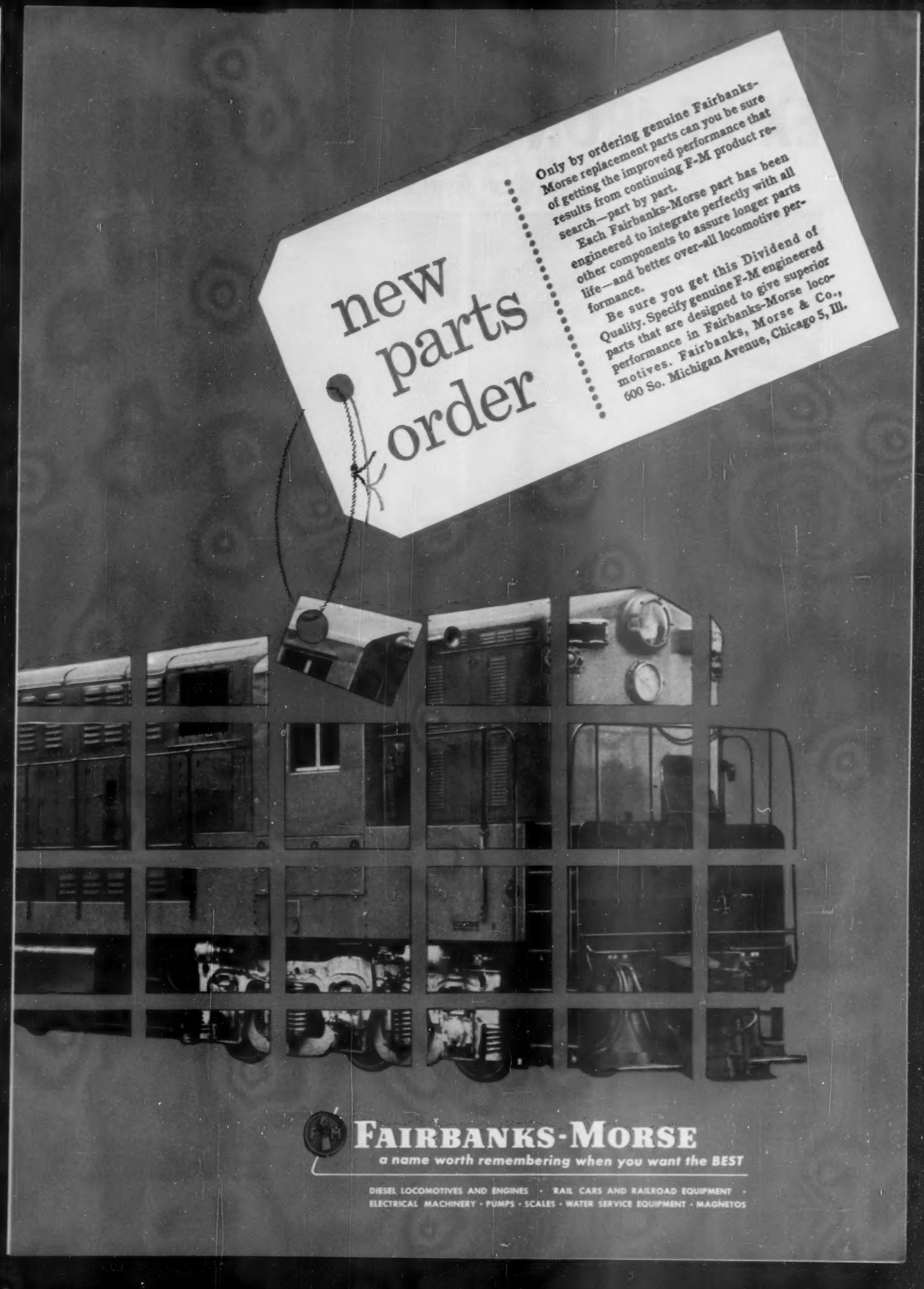
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EXIDE-IRONCLAD BATTERIES

For railway diesel starting

Deliver the power over a wide range of temperatures

BATTERY FOR RAILWAY DIESEL STARTING. Exide-Ironclad Model MVD. Write for Bulletin No. 5348.

At few places on earth do storage batteries ever encounter such extremes of cold and heat as are used to test Exide-Ironclad Batteries in the laboratory.

These tests prove that Exide-Ironclad Batteries can be depended upon over a wider range of temperatures than they are ever likely to be asked to endure. And they provide tangible extra assurance of dependability at all the more normal operating temperatures.

Extreme temperature performance is especially important when a battery must have continuous dependability. It is often at these extremes that a battery is most needed. And a battery cannot be called dependable unless it can be counted on every day—all of the time.

The high and low temperature performance of Exide-Ironclad Batteries is a direct result of their unique construction features and special engineering. In countless applications, these batteries have earned an unmatched reputation for long life and high capacity. When you need batteries for heavy duty uses, be sure to specify Exide-Ironclad. Write for detailed bulletin. Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 2, Pa.

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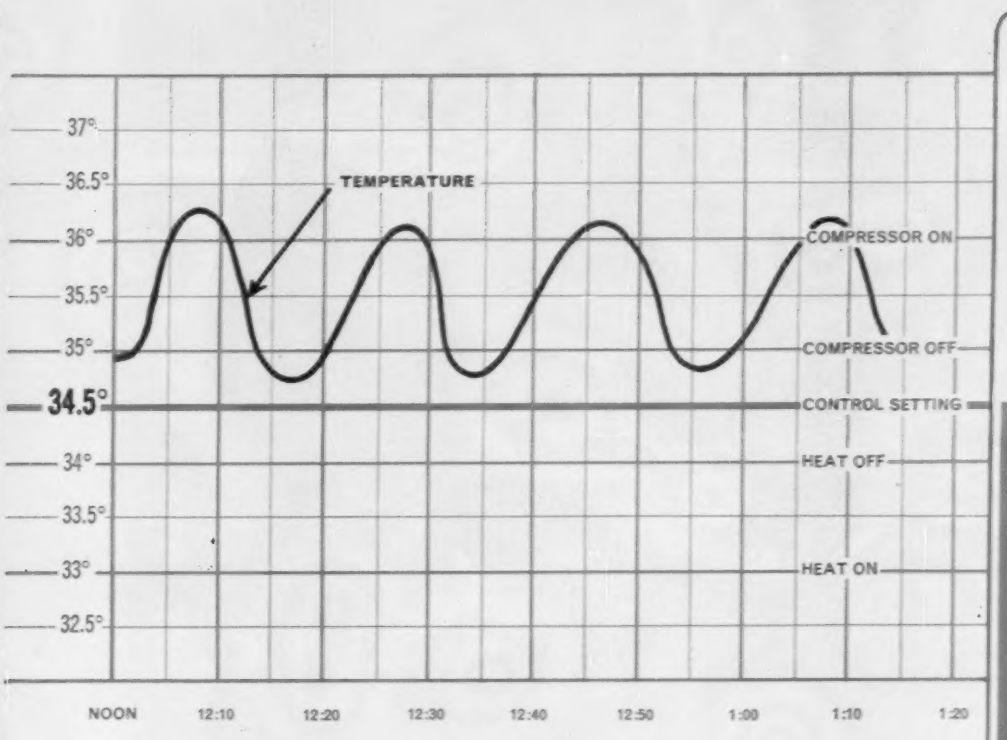
Magnetic Amplifier Temperature Control

for refrigerator cars

ends bump and shock failures!



No electronic tubes

No delicate relays

Sturdy, new control unaffected by vibration, moisture, altitude changes

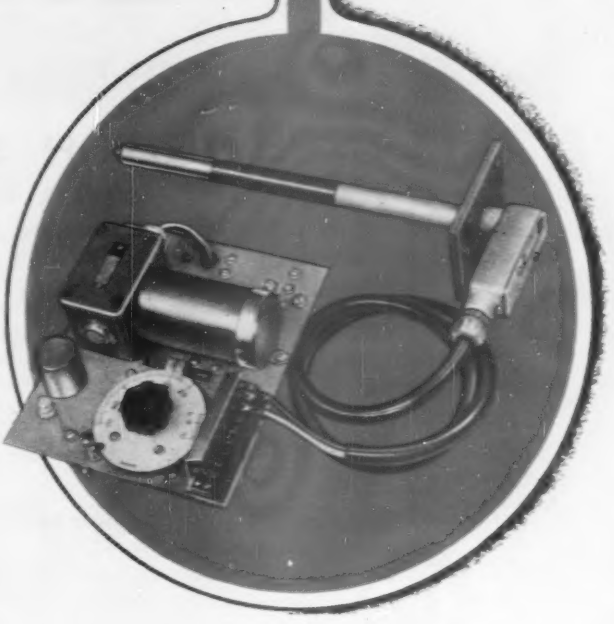
Positively protects perishables in transit.

Test made on standard car equipped with mechanical refrigeration system and Vapor Magnetic Amplifier. Fourteen-inch probe with thermal barrier. Ambient 90°F., empty car.

Here at last, a simple and thoroughly reliable temperature control that insures positive control of either heating or cooling or both. There are no electronic tubes, no *sensitive* relays; there is merely a simple bridge circuit giving a signal to a proven magnetic amplifier and *rugged* relays. A sensitive, waterproof resistance-type pick-up is located in the loading compartment where it feels the temperature of the car and automatically turns heating or cooling equipment ON and OFF

Temperatures are controlled from a range of —10°F to +70°F Control panel is only 8" x 10", has no delicate parts and does not require frequent inspection. Manufactured by Vapor Heating Corporation, the new *Magnetic Amplifier Refrigerator Car Control* is exceptionally rugged in construction . . . designed by engineers experienced in the transportation field. Control band HEAT ON—COMPRESSOR ON—can be adjusted at factory from 1° to 5°. It can be used with the full knowledge that its design recognizes the hazards of service, the importance of the load, and the problems of maintenance.

For complete information, wire VAPOR, CHICAGO, collect. Simply ask for *Bulletin 2037.*



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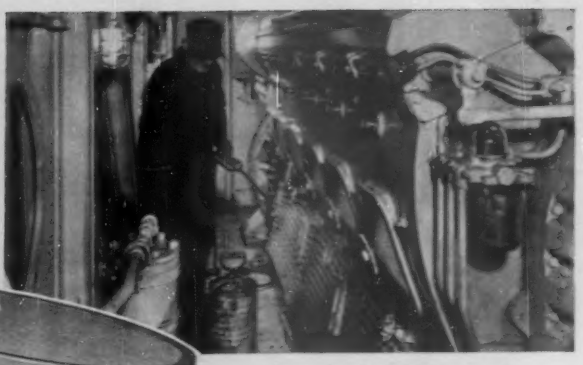
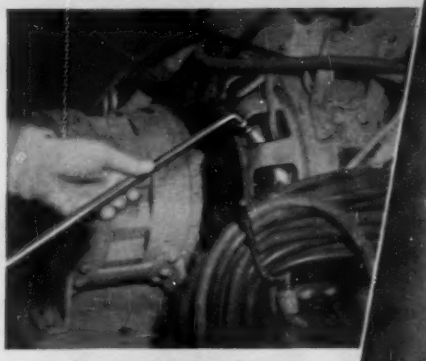
Cleaning trucks, journals and outer surfaces.



Spray cleaning diesel engines.



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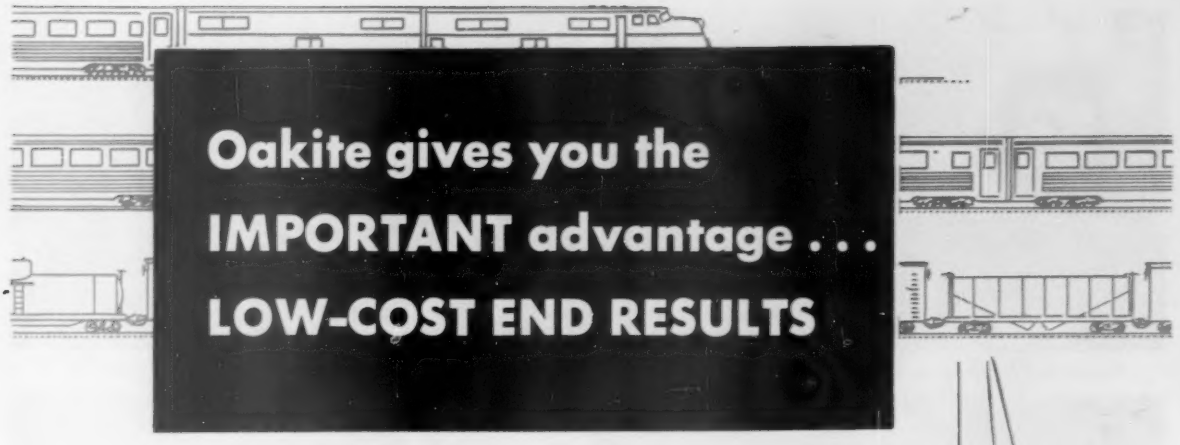
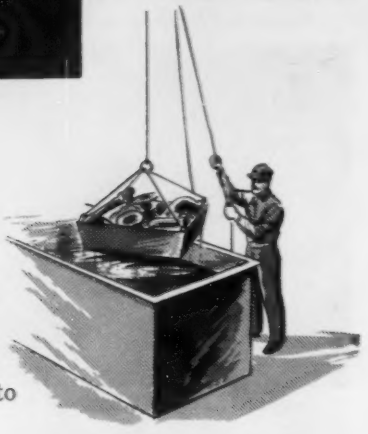


Oakite gives you the IMPORTANT advantage . . . LOW-COST END RESULTS

for example:

One Company saves over $300 every 12 weeks in back shop tank cleaning



Best way to find out how much a cleaning compound really costs is to figure it on a *cost-per-job* basis not on price-per-pound.

Take a good look at these actual figures and you'll quickly see what we mean. The job in question is back shop tank cleaning.

As you see, the price-per-pound figures in the first column are deceiving. The cheaper cleaner turned out to be more expensive in the long run. The more expensive Oakite Cleaner, with its greater stamina, reserve cleaning power and long solution life saved the Road over $300.00 inside of three months.

	Initial Cost per lb.	Initial Cost to Charge Tank	Upkeep Cost (12 weeks)	Total Cleaning Cost (12 weeks)
Cheaper Cleaner	.17	$127.50	$612.00	$739.50
OAKITE CLEANER	.22	$165.00	$266.00	$431.00

Savings to the Railroad $308.50

Here, then, is proof that Oakite gives you the IMPORTANT advantage . . . LOW-COST *END RESULTS.*

Nothing could convince you more than your own cost-per-job comparison. Your local Oakite Railway Representative will be glad to work with you. Write Oakite Products, Inc., 46 Rector Street, New York 6, N. Y.

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SCIENCE

RAILWAY DIVISION

Automatic 3-lever tong designed for handling individual car wheels affords 3-point contact

1. Tong, automatically locked open after the previous lift, is lowered over the wheel
2. Craneman gives slack to release automatic mechanism, unlocking tong for gripping
3. As craneman starts his lift, the tong closes in for a tight grip on the car wheel
4. Tong safely carries the wheel; will not let go until the wheel is delivered to its destination

Heppenstall automatic Safe-T-Tongs, custom built to your individual needs, speed handling, eliminate safety hazards

Heppenstall's fully-automatic Safe-T-Tongs are today's answer to many difficult material handling problems encountered in "automated" railroad machining setups. Requiring no power, they operate merely by being lowered on the burden to be lifted. They go through their entire cycle of automatic operation quickly, safely, accurately and efficiently.

Safe-T-Tongs are also widely used in the railroad industry where individual lifts of materials are handled by hoist or crane. They do not require any rigging or chains on the load to be lifted, nor ground chainmen—thus eliminating potential safety hazards. No difficulties can result from misunderstood signals, premature lifts, and the many cases of lost time and injury to employees. Your craneman does the entire job, either from his cab or by remote control.

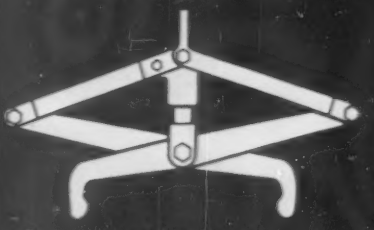
Whatever your particular handling jobs require—regardless of shapes, weights or sizes—Heppenstall tongs, engineered specially to your individual needs, will help you economically speed the handling of heavy rail, wheel, truck and axle components with greater efficiency and safety.

For complete information and technical assistance, contact Heppenstall Company, New Brighton, Pa. Sales offices and representatives are located in principal industrial centers.

Heppenstall

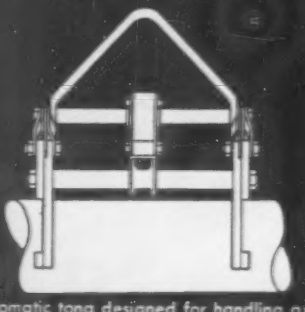
. . . tongs for every railroad lifting problem

Automatic tong designed to handle wheel, axle and truck assemblies

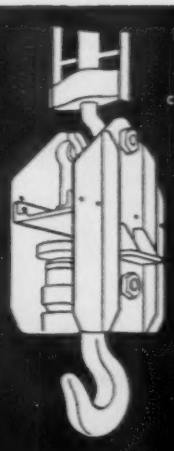


General purpose single tong with serrated grip shoes for plate, wheels, structurals and related items

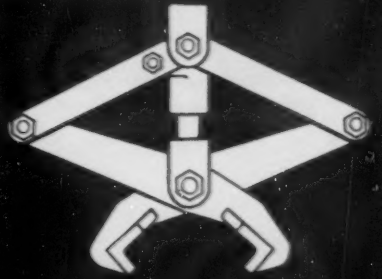
Automatic tong for handling wheel and axle assemblies



Automatic tong designed for handling axles

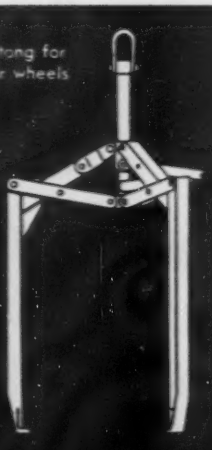


New motorized (360° rotation) crane hook for use with existing crane blocks and hooks

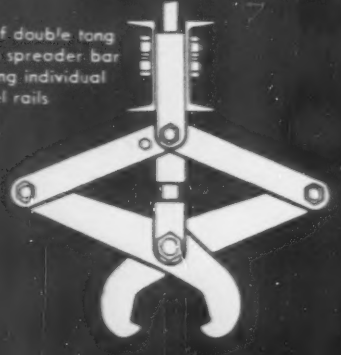


Single tong for handling individual steel rails

Automatic 3-legged tong for handling stacks of car wheels



End view of double tong mounted on spreader bar for handling individual steel rails



another
"BUFFALO"
first...

The world's first freight car equipped with Brake-X will be placed in regular service this month. Preliminary tests of this completely new type of braking for freight trains point the way to a new era in safety—economy—and faster service for the nation's shippers.

On June 26-27-28, NYC "Early Bird" Box Car No. 174853 will be on view at La Salle St. Station, Chicago, during the A.A.R. Mechanical Meetings. Open floor wells over each truck will permit complete inspection of Brake-X, the new single disc freight car brake, by railroad officials, shippers and representatives of the press.

Buffalo Brake Beam Company, New York

"Nitric Acid leaking— we need help fast."

A General American District Manager got this message. One of his customers was in trouble. A 50,000-gallon tank of concentrated nitric acid had sprung a leak. The acid would be lost . . . property would be damaged . . . lives might be endangered. Fast action was imperative!

Nitric acid? That called for stainless steel tank cars. Where were the nearest ones? Find them . . . explain the situation. Call the railroad. Have a special train made up. Pick up the cars and highball to the trouble spot. Above all, hurry.

Within hours, the GATX stainless steel cars were at the plant, the acid was transferred to the cars and the storage tank repaired with a minimum of loss.

Unusual? Of course . . . but unusual service is one of the many benefits offered to lessees of GATX tank cars. There are over 48,000 cars in the GATX fleet . . . over 200 different types . . . available for your use without capital investment. To keep this fleet rolling, General American maintains a nation-wide network of district offices and shops that provide service on a 24-hour basis. That's why, when it comes to dependability, *it pays to plan with General American.*

GATX GENERAL AMERICAN TRANSPORTATION CORPORATION
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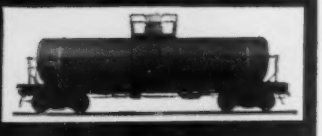


Getting the ICC Back on the Beam

If the Interstate Commerce Commission had been regulating rates the way Congress, in the Transportation Act of 1940, intended they should be regulated—then Congress wouldn't have to be asked, as it is being asked today, to enact the "three shall nots" into law.*

Where Regulation Errs

The most objectionable aspect of railroad rate regulation, as practiced in recent years by the ICC, has been its frequent refusal to permit reductions in rates—on the allegation that the proposed new rates, even though clearly profitable, would attract too much traffic away from rival agencies of transportation. In other words, the ICC has, in many cases that have come before it, set itself up as the protector and defender of the high-cost producer of transportation; and has refused to permit the low-cost producer to go as low as his costs would justify in bidding for competitive traffic.

Any "status quo" always has vested interests which have grown up around it; and the champions of the high-cost haulers would like to have Congress and the public believe that the enactment of such measures as the "three shall nots" would constitute a revolutionary innovation in transportation regulation.

Actually, the "shall nots" involve no innovation whatever—but would simply require transportation regulation to conform to the letter and spirit of the law, as enacted by Congress in the Transportation Act of 1940. The three "shall nots," if enacted, would restore the kind of regulation that the ICC itself has practiced—but a pattern from which it has often strayed with no mandate from Congress to do so.

The facts in this situation have been set forth by spokesmen for the Association of American Railroads, in a statement filed with the House Committee on Interstate Commerce in answer to erroneous testimony by truckers' witnesses on proposed transportation legislation. As to the intent of Congress in approving the Transportation Act of 1940, the AAR report cites a statement to Congress by the ICC itself. Said the ICC's legislative chairman:

"Apparently it is feared that the commission might, merely to protect a competing carrier of another type, prevent a carrier from reducing rates, notwithstanding that when reduced they would still cover all costs, plus a profit."

The ICC spokesman went on to say that the act had sufficient safeguards to prevent this kind of rate-making. Nevertheless, it is precisely this kind of rate-making—holding railroad rates at a level not required by railroad costs, merely to prevent the railroads from diverting traffic from higher-cost agencies of transportation—that now makes necessary the enactment of the "three shall nots."

The AAR report goes on to cite, from congressional debates on the Transportation Act of 1940, similar views of such legislative leaders as Senators Wheeler and Truman and Congressman Wolverton.

How the ICC ever wandered away from a doctrine thus clearly stated by Congress is just one of those mysteries. It certainly started out, under the Transportation Act of 1940, with a very clear understanding of the wording of the act and of the intent of Congress. In the so-called "Seatrain Case" some break-bulk water carriers and some all-rail routes sought to prevent Seatrain from establishing lower rates, contending that, with lower rates and superior service, Seatrain would take all the business. The ICC, nevertheless, authorized Seatrain to make the proposed reductions—stating its clear opinion that it had no right under the law to require a carrier to maintain rates at a high level, merely to protect the traffic of a competitor.

One-Sided Regulation

The ICC followed this doctrine in other important cases—but its record has been far from consistent. In fact, as the AAR people point out, "the great majority of its decisions on this subject have gone the other way and sought, through the fixing of rate differentials, to produce artificial competitive balance between competing forms of transportation—irrespective of their economic characteristics."

The railroad statement might have added (although it did not) that the ICC's efforts to tilt the scales anti-economically can tilt them only one way, viz., against the railroads. They cannot be tilted effectively in favor of the railroads (i.e., requiring motor and water carriers to hold rates at a high level for the railroads' benefit), because 65 per cent of truck transportation and 90 per cent of barge transportation are exempt from regulation.

This paper respects the ability and honorable intentions of the ICC. The contradictory nature of its decisions in this area, however, affords irrefutable evidence of its need for further legislative guidance.

* These "shall nots" are the three recommendations in the Cabinet Committee report on transportation which the railroads consider to be the most important—hence calling for early approval by the Congress. These recommendations are to the effect that, in passing on competitive rates proposed by one form of transportation, the ICC (1) shall not consider the effect of these rates on any other form of transportation; (2) shall not consider the relation of these rates to those of any other forms of transportation; (3) shall not consider whether the proposed rates are lower than is necessary to meet the competition. See Railway Age, May 14, p.11.

NEW YORK—WASHINGTON service will be the assignment for this 763,000-lb train. Seven "tubular" coaches seat 574. No special motive power is provided; it will be handled by standard GG1 electric locomotives.

"Tubular": Trend or Transition?

Budd builds Pennsy lightweight train combining many conventional components with other concepts only recently accepted in the railroad field

"Tubular," the Pennsylvania's own eight-car lightweight, is the Budd Company's first entry in the current low-slung, cost-cutting coach-train competition.

These cars were built to PRR specifications. While the AAR standard 85-ft unit length is retained, the overall height comes to just under 12 ft. The four-wheel trucks are conventional. The cars have the usual end platform height and arrangement, but the center sill has disappeared along with the individual car generating equipment. This train, then, is a mixture of already proved designs with new concepts which have been offered to reduce the investment and expense of passenger service operation.

What have Budd and the Pennsy done? They have employed head-end generating equipment, a-c train-line distribution, and all-electric heating for these cars. They have carried the buff loads through the side sill structure around a depressed coach floor which extends the entire distance between the trucks. The "Tubular" utilizes decorative materials which are intended to simplify or eliminate expensive maintenance and refinishing problems.

The cars can be coupled with conventional equipment, can stop at present stations with no platform level complications, and can be handled by standard electric or diesel locomotives. Each car has rotating-reclining seats for 68 passengers, a smoking lounge for 14 more. This has been done in a car which weighs a little over 1,000 lb per passenger.

The "Tubular" train consists of seven 82-passenger coaches and an auxiliary power car. This eight-car train is intended to run as a unit, drawing electrical power for light, heat and air conditioning from diesel-driven alternators on the power car. This power car also contains an 18-ft food service section from which meal service will be at the passengers' seats.

"Tubular" Coach

At each end of each coach is a Youngstown arc-welded, stress-relieved low alloy, high tensile steel end underframe unit, consisting of the body bolster, draft sill extension, end sill, coupler carrier and adjacent structures. These underframe units extend under the higher floor area over the trucks to the depressed

floor section. They are welded to transverse floor members and braced by stainless steel cross-bearers at the ends of the depressed floor area.

The crossbearers, bolster beams and floor construction will connect the underframe units to the side sill members and transfer the buffing forces into the sides of the car. The depressed floor is supported by 5-in. deep stainless steel Z-shaped members framed into channels which form part of the main side sills.

Stainless Steel Structure

The entire body structure has been designed as a modified girder. End structures incorporate vertical stainless steel collision posts at each side of the end openings, and these are another structural attachment between the floor and roof. The roof is covered with stainless sheets which have ½-in. high, closely spaced corrugations welded to the top flanges of transverse Z-shaped carlines.

The entire exterior is sheathed with unpainted corrugated and fluted stainless steel applied with the Budd Shotweld process. The design complies with the AAR and RMS strength requirements. A coach was proof tested satisfactorily to 800,000 lb compression load.

Two conventional General Steel four-wheel, single-equalizer, outside swing hanger trucks with Hyatt 5 by 9-in. roller bearings are used under each coach and under the power car. These trucks have the General Steel large central bearings and are equipped with Budd disc brakes and Rolokron wheel slide control. National Malleable's Type H couplers are used on the coaches and Type F on the power car. The Westinghouse HSC air brake equipment with D-22-AR control valve is arranged only for pneumatic control.

In the power car the center sills, end underframe units, and the engine beds are all made of carbon steel, as are the partitions. The car shell is a stainless structure with corrugated and fluted stainless sheathing. This car is 53 ft long. The 32-ft engine room at one end contains two Cummins diesel-powered Westinghouse alternators, each rated at 265 kw. These units take their fuel from a 600-gal tank. This capacity permits 15 hours of full load operation.

In addition to the alternators, the engine auxiliary equipment, and the switch gear for the engine generator units and for the main distribution system are located in this engine room. The 18-ft 6-in. food service section in the other end of the car has all-electric utilities, including grills, oven and warmer, an electric cooker, and three refrigerators—one intended for frozen food storage. There are also sinks and work areas.

The food service section is air conditioned with a 3-ton unit which incorporates a 3-kw space heater providing all the heating. The engine room is not heated.

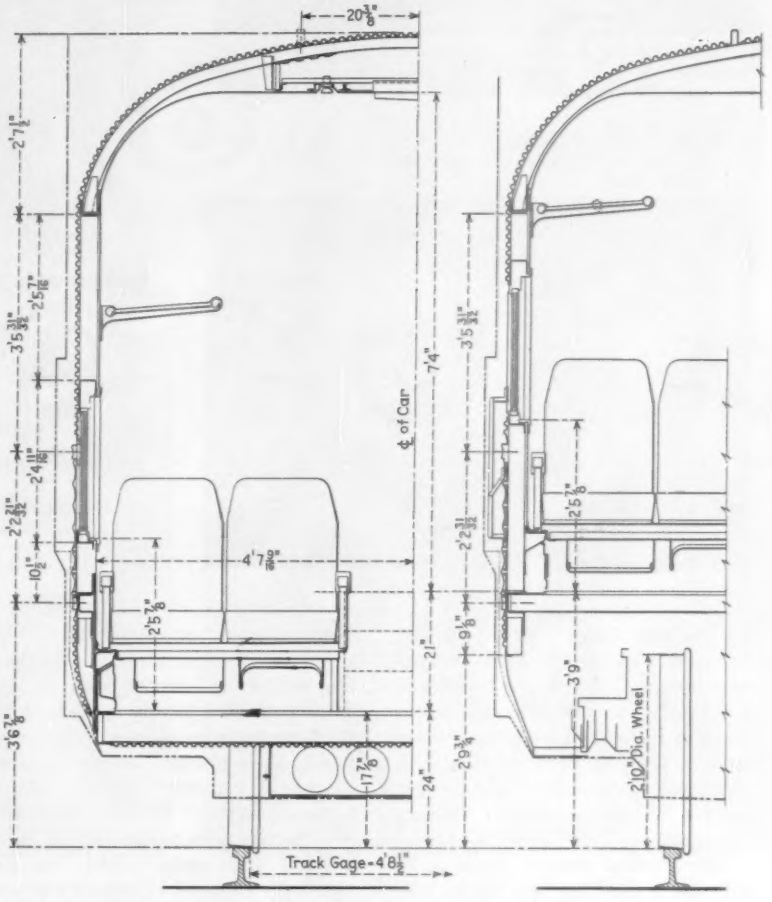
Water is taken from a 100-gal tank enclosed in a stainless casing under the car and protected with an immersion heater to prevent freezing. Hot water for the kitchen is provided by another immersion heater.

The electrical load on this car necessitates the use of three 15-kva, 440/220-volt, transformers—a total of 45-kva. The transformers provide power not only for the operation of the kitchen, but also for the car lighting, battery charging and antifreeze protection. A 16-cell 426 amp-hr Gould battery, trickle-charged from the 220-volt system, carried in conventional battery boxes under the car, is intended for engine starting and control circuits only.

Train Power Distribution

The electric power used in the passenger carrying cars is carried through the train from the power car by twelve General Electric 3/0 cables arranged in four parallel, 3-phase circuits. If one of the Joy power jumpers used between cars is pulled out, control contacts in the connector open the circuit breakers in the power car before the power jumper contacts open.

The 440-volt, 3-phase power is used for heating, operation of air conditioning compressors and blowers, and battery charging. The die-



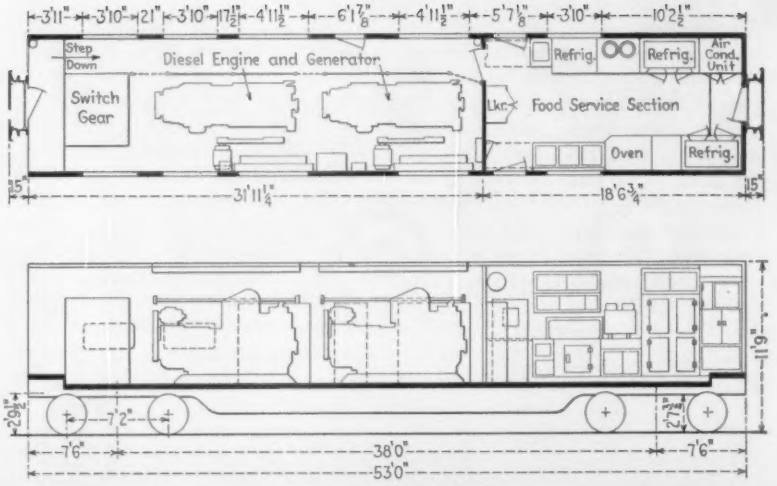
CROSS SECTION shows two seating levels in the "Tubular."

"KEYSTONE"

The "Tubular" has been christened the "Pennsy Keystone" and is scheduled to make two daily round trips on the New York—Washington run starting June 24th. Its timing duplicates that of the trains it replaces.

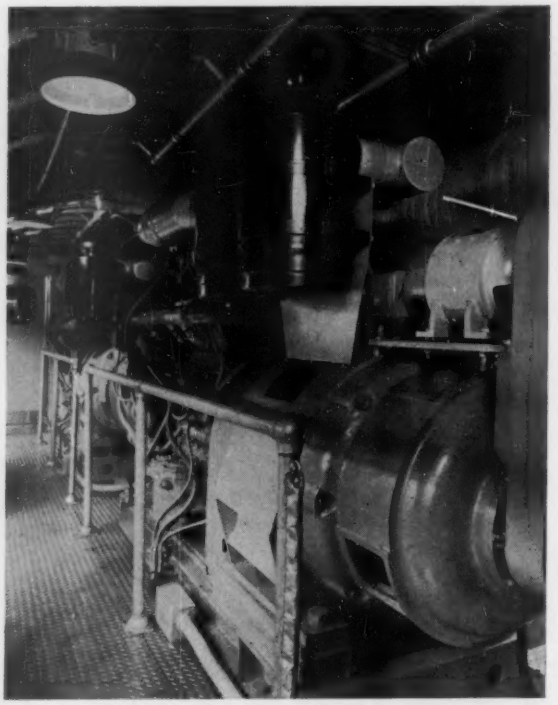
POWER CAR

Pictures and plans on this page show the power car of the "Tubular" train.



POWER CAR (above) has radiators and air intakes in the car sides; does not have deep depressed floor characterizing coaches. Food service section is in the right end.

FOOD SERVICE SECTION (below) can occupy full width of the power car because this unit will be operated at one end of the train.



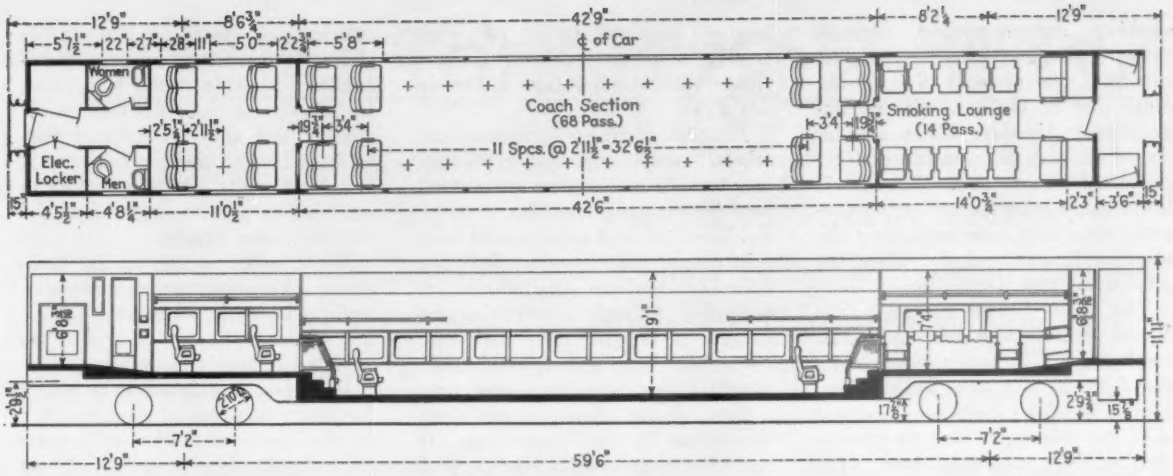
DIESEL-ALTERNATORS in the power car can produce 530 kw a-c at 440 volts. Engines are started from storage batteries in boxes under car floor and take fuel from tanks built into the center sill.

sel radiator fans operate directly from the 440-volt trainline. In each car there are three 3-kva transformers which step the 440-volt power down to 110 volts for lighting, water coolers, water heaters, exhaust fans, antifreeze heaters, fresh air damper motors and an emergency lighting relay.

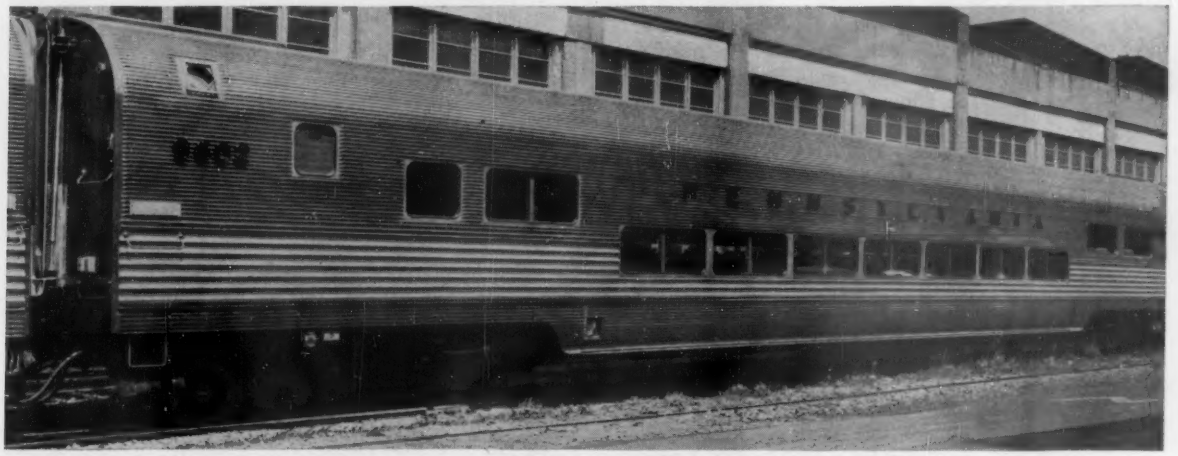
Supplemental electric power at 32 volts d-c is provided by a 25-cell Edison B-4-H, 75 amp-hr battery in two battery boxes on each car. This power is used for emergency lights and heating and cooling controls. A 10-amp rectifier is used to keep each of these batteries charged. On each coach, three-phase, 220-volt standby power is connected through three General Electric 7½-kva, 220/440-volt transformers to the 440-volt bus.

Each 82-passenger coach has its own 8-ton capacity Frigidaire electromechanical air conditioning system, operating on the direct-expansion principle with freon as a refrigerant. The compressor-condenser unit is mounted beneath the floor between the truck and end of car at the non-vestibule end. The air conditioning unit is floor-mounted in a locker at the same end of the car.

The conditioned air is distributed through a center ceiling duct and discharged into the coach section and *(Continued on page 40)*



COACHES



EXTERIORS are highlighted by red letters. Double-width windows in the coaches are divided with mullions.

LOWER AND UPPER coach sections are lighted with ceiling-mounted fixtures using circular fluorescent tubes. Depressed section has a ceiling height of 9-ft 1-in.

SMOKING LOUNGE is located at vestibule end. Ramps and steps have rubber tile colored to contrast with remainder of floor. Entire interior is faced with colored plastic.

smoking lounge section through Safety continuous flush type distributors, one on each side of the center-line of the car. Viscous impingement Air-Maze filters are installed in both the outside and recirculated air streams. Vitiated air is exhausted from the car by two propeller type fans, one exhausting the smoking lounge and the other the washrooms and electric locker.

The car is heated electrically by Vapor strip heaters of which 20.8 kw is located in heater boxes along the floor at the side walls. Strip heaters of 25.5 kw are also mounted near the evaporator unit to provide the requisite overhead heat. The Vapor temperature control panel is arranged for automatic changeover from heating to cooling. The temperature selector switch has three positions, *on-day, off* and *on-night.*

A motor-operated outside air damper is included in the system. This damper is closed and exhaust fans are shut off during restricted heating to permit operation of the blower without admitting outside air to the car.

The coils of all car contactors and relays, except supervisory control and transfer switches, are arranged for operation on nominal 32 volts, d-c. The floor heat arrangement comprise single strip heaters. Both the floor and overhead strip heaters are controlled through a switching arrangement to give full heat when connected delta and approximately one-third heat when connected wye.

Both of the diesel engine-driven alternators in the power car are needed to supply full heating load for all the cars in the train. A master supervisory control relay is included in the power car to trim the heating load, close the outside air damper and shut off exhaust fans in the event of either engine or electrical failure of one of the alternator sets.

TUBULAR TRAIN DECORATIONS

Location	*Material*	*Four Coaches*	*Three Coaches*
END PASSAGES AND WASHROOMS			
Floor	Rubber tile	Gray & black	Coralette
Ramps	Rubber tile	Black & white	Black & white
Passage walls, doors	Micarta plastic	Norway blue	Rosewood brown
Washroom walls	Micarta plastic	Mottled green	Mottled coral
Ceiling	Micarta plastic	Mottled green	Mottled coral
Locker, end doors	Satin stainless steel		
COACH SECTION			
Floor, Aisle	Rubber tile	Gray & black	Coralette
Under seats	Rubber tile	Black & white	Black & white
Stair treads	Rubber tile	Black & white	Black & White
Wainscot	Micarta plastic	Norway blue	Rosewood brown
Dividing partitions	Micarta plastic with clear glass panels	Norway blue	Rosewood brown
End bulkheads	Micarta plastic with photomurals	Norway blue	Rosewood brown
Pier Panels, upper level	Micarta plastic	Mottled green	Mottled coral
Lower level	Micarta plastic	Off white	Off white
Frieze, upper level	Micarta plastic	Mottled green	Mottled coral
Lower level	Micarta plastic	Off white	Off white
Ceiling	Micarta plastic	Mottled green	Mottled coral
Upholstery, upper level	Mohair	Coral with turquoise trim	Turquoise with coral trim
Lower level	Mohair	Turquoise with coral trim	Coral with turquoise trim
Seat backs	Haircell	Gray	Gray
LOUNGE SECTION			
Floor	Rubber tile	Gray & black	Coralette
Wainscot	Micarta plastic	Norway blue	Rosewood brown
Pier panels, ceiling	Micarta Plastic	Mottled green	Mottled coral
End bulkheads	Micarta plastic with photomurals	Norway blue	Rosewood brown
Upholstery, 6 chairs	Duraleather	White, brown and black	White, brown and black
4 chairs	Duraleather	Yellow & gray	Turquoise
2 seats	Mohair	Coral	Turquoise
GENERAL			
Window sills	Molded plastic	Black	Black
Curtains	Pantasote	Tan	Tan
Bag racks, lights, molding, etc.	Satin natural metal		

When the car is on 220-volt, 3-phase, 60-cycle standby service, an auxiliary function of the load transfer relay is to close the outside air damper and shut off exhaust fans on both heating and cooling, and it also functions to limit the heating to one-third to prevent overloading the wayside power supply.

Wash water is heated by individual 1-kw instantaneous immersion heaters in each washroom. These are thermostatically controlled to hold the desired temperature.

If a train is stopped in a tunnel for longer than five minutes, a switch in the locker of each car permits manually limiting the overhead heat in all coaches to the star arrangement (1/3 capacity or 8.3 kw per car) while continuing full floor heat (20.8 kw). At the same time the fresh air damper closes and exhaust fans are shut off. This simulates the loss-of-one-engine restriction which reduces engine load to approximately one-half, and minimizes toxic fumes from engine exhaust.

Lighting

Fourteen footcandles of general illumination is provided in the cars by 12 Safety 18-in. square lighting units, evenly spaced along the center line of the ceiling. Each unit has a plastic shade and contains two 110-volt concentric fluorescent circline tubes. A capacitor in the regulator locker holds the lighting load power factor at about 90 per cent. Incandescent lighting fixtures are used in the men's and women's washrooms, and the light sources for illuminated plastic handrails are also incandescent.

Emergency lights are supplied by the 32-volt battery. These include five 25-watt lamps in the ceiling and a 15-watt lamp in each vestibule and washroom. Marker lights also operate from the 32-volt power.

While the arrangement of the seven passenger cars is almost standard, there are two basic decorative schemes. In addition, one of the coaches has a crew locker in place of one of the luggage lockers, and in the center coach there is a food service cupboard instead of one luggage storage space.

Dwight Austin lightweight, reclining seats are used in the upper and lower level coach sections. All are (*Continued on page 58*)

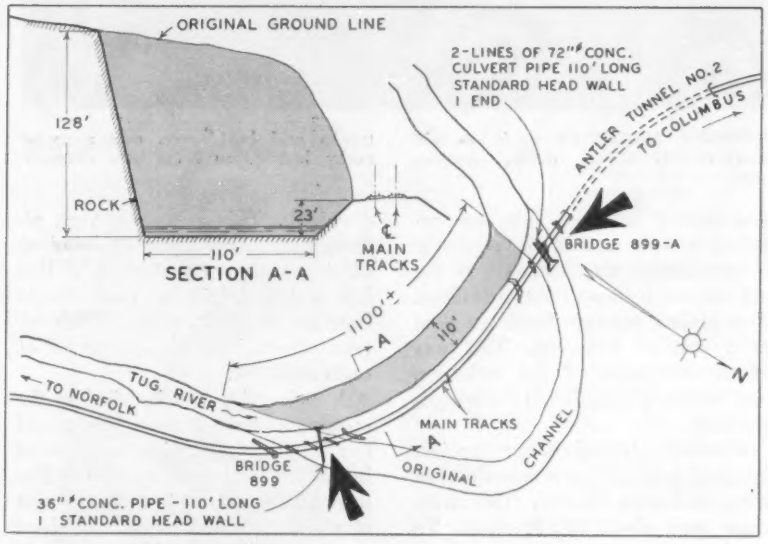
Eliminating 8 Bridges Saves $1.3 Million

How It's Done:

- Find location where stream crosses track twice
- Excavate new channel along one side of roadbed
- Fill in old crossings; install culverts as needed

HERE'S AN EXAMPLE:

Digging This Channel . . .



Eliminated These Two Bridges

Modern grading equipment was a key factor in an unusual cost-saving program recently carried out on the Norfolk & Western. By carving channel changes at four strategic locations the railroad was able to eliminate eight double-track steel bridges that would have required major repairs during the next ten years. The channel changes, as compared to the expenditures that would have been required to make the repairs, will produce a net saving of about $1.3 million.

These channel changes are located at four points on the Pocahontas division between Bluefield and Williamson, W. Va. The line extends through high mountains and along crooked streams. Many bridges, tunnels and curves were included in the original construction during the 1880's.

Rock and earth excavation was held to the minimum because grading equipment capable of handling heavy earthwork economically was not then available, while bridge construction was relatively inexpensive.

New Methods Change Practice

Today the situation is reversed. Heavy power shovels, trucks and scrapers, supplemented by improved explosives, make the movement of large quantities of earth and rock relatively economical. At the same time present-day prices of bridge material and labor have greatly increased the cost of constructing and maintaining bridges.

N&W engineering officers concluded, therefore, that relocation of the streams at four locations was economically feasible. This was true even though the channel changes

ranged up to 128 ft in depth and their construction required the removal of approximately 700,000 cu yd of earth and rock.

Cost Cut Two-Thirds

The program was inaugurated in 1952. The eight double-track bridges, with an aggregate length of 3,222 track-feet, have now been eliminated. Culverts were installed in the old bridge openings to insure that there would be water in the old channels at all times to avoid complaints from adjacent land owners.

Altogether the work cost about $660,000. This is only about one-third the estimated cost (about $2,000,000) of repairing and maintaining the eight bridges during the next ten years.

The first channel change, completed in 1952, was 500 ft long. It required the removal of approximately 50,000 cu yd of earth and rock.

A 36-in. pipe was installed through one old bridge opening and a 48-in. pipe through the other. This project cost about $75,000, one-third of the estimated cost required for continued maintenance of these two bridges.

At Nemours, about nine miles west of Bluefield, two bridges spanned the Bluestone river about 1,800 ft apart. Their elimination required removal of more than 200,000 cu yd of earth and rock. In this instance, a 36-in. pipe was installed through one bridge and a 72-in. pipe through the other. It is estimated that this work, completed in 1955 and costing more than $200,000, eliminated charges for maintenance of about $300,000, which would have been required during the next ten years.

A New Channel

The third project involved two bridges across the Tug river at Claren, about 43 miles west of Bluefield.

The new channel between these bridges required the removal of approximately 200,000 cu yd of rock and earth. A 36-in. pipe was placed through the opening of the upstream bridge and a 10-ft by 10-ft reinforced-concrete box culvert was constructed in the old opening of the downstream bridge. This was required to take care of the relatively large drainage area tributary to the old channel between the two bridges. This project was completed last year at a cost of $150,000. This was about one-fourth of the estimated cost necessary to maintain the bridges replaced.

MODERN MACHINES such as air compressors, wagon drills, shovels, trucks and bulldozers, eats away at rocky hillside to form new channel.

Another channel-change project involved two bridges across the Tug river at Pando, W. Va. The structures were about 800 ft apart. To eliminate these bridges a new channel for the river was excavated on the south side of the tracks (see drawing). This channel change, although comparatively short, required carving a deep cut through a side hill which originally rose steeply from the roadbed's edge. It involved removal of about 250,000 cu yd of earth and rock.

A 36-in. pipe was installed in the opening of the upstream bridge and two lines of 72-in. pipe were placed in the downstream opening. The work was completed in 1954 at a cost of about $200,000. This was about one-fourth of the estimated cost of maintaining the two structures during the next ten-year period.

Program of June 26-28 Meetings

AAR Mechanical Division and Electrical Section

D. S. Neuhart
Chairman

The Mechanical Division and the Electrical Section of the Engineering and Mechanical Divisions of the Association of American Railroads will meet for their twenty-ninth and fourth annual meetings, respectively, at the Hotel Sherman, Chicago, June 26-28.

Concurrent with these meetings will be an exhibit and meeting of the Railway Electric Supply Manufacturers Association. Exhibits will be open from 6 to 9 p.m. (Central Daylight Saving Time) Monday, June 25; from 9 a.m. to 5 p.m. Tuesday and Thursday, June 26 and 28; and from 10 a.m. to 9 p.m., Wednesday, June 27.

The general committee members of

(*Continued on next page*)

W. M. Keller
Executive Vice-Chairman and Director of Research

JOINT SESSION

► TUESDAY, JUNE 26

BALLROOM—10 A.M.

Keynote address by J. P. Kiley, president, Chicago, Milwaukee, St. Paul & Pacific
Address by R. G. May, vice-president, Operations and Maintenance Department, AAR

MECHANICAL DIVISION

► TUESDAY, JUNE 26

BALLROOM

Address by Chairman D. S. Neuhart, general superintendent motive power and machinery, Union Pacific
Appointment of committees
Report of General Committee
Report of Nominating Committee
Discussion of reports on:
- Locomotives
- Lubricants and Fuel for Diesel Locomotives
- Axles
- Geared Hand Brakes
- Specifications for Materials
- Safety Appliances

► WEDNESDAY, JUNE 27

LOUIS XVI ROOM (SECOND FLOOR)—9:30 A.M.

Address by G. Murray Campbell, vice-president and executive representative, Baltimore & Ohio
Discussion of reports on:
- Arbitration
- Price
- Car Construction
- Passenger Car Specifications
- Brakes and Brake Equipment
- Couplers and Draft Gears
- Loading Rules
- Forest Products

► THURSDAY, JUNE 28

BALLROOM—9:30 A.M.

Address by W. H. Schmidt, Jr., executive editor, Railway Age
Discussion of reports on:
- Wheels
- Tank Cars
- Journal Roller Bearings
- Lubrication

Election of members of General Committee and Committee on Nominations
Report of Committee on Resolutions

NEXT PAGE FOR ELECTRICAL SECTION ▶

ELECTRICAL SECTION

► TUESDAY, JUNE 26

MORNING SESSION—LOUIS XVI ROOM (SECOND FLOOR)—11 A.M.

Address by Chairman K. H. Gordon
Report of the Committee of Direction, by Vice-Chairman S. B. Pennell
Appointment of special committees
New business
Discussion of reports on:
- Wiring Diagrams
- Automotive and Electric Rolling Stock

AFTERNOON SESSION—2 P.M.

Discussion of reports on:
- Railway Electrification
- Safety
- Repair Shops
- Welding and Cutting

► WEDNESDAY, JUNE 27

MORNING SESSION—BAL TABARIN ROOM (SIXTH FLOOR)—9 A.M.

Address by Chairman of Mechanical Division—D. S. Neuhart, general superintendent motive power and machinery, Union Pacific
Discussion of reports on:
- Air Conditioning and Refrigeration
- Electric Heating
- Power Supply
- Corrosion

AFTERNOON SESSION—2 P.M.

Discussion of reports on:
- Car Electrical Equipment
- Illumination

► THURSDAY, JUNE 28

LOUIS XVI ROOM (SECOND FLOOR)—9 A.M.

Discussion of reports on:
- Application of Radio and Communication Systems to Rolling Stock
- Wire, Cable and Insulating Materials
- Relations with Public Utilities
- Motors and Controls

Routine and miscellaneous business—announcing election of officers, members of Committees.

K. H. Gordon
Chairman

(*Continued from preceding page*)

the AAR and Clarence E. Manion, a prominent radio speaker, will be the guests of honor of the supply association at a luncheon in the Grand Ball Room of the Sherman on June 27. The supply association will present "The Railway Frolics of '56" at 9 p.m. on June 26, and there will be an informal dance the evening of June 27.

S. B. Pennell
Vice-Chairman

Railway Electric Supply Manufacturers Association Exhibitors

Allen-Bradley Co. 77-78
Anderson, Albert & J. M. Mfg. Co. 51
Appleton Electric Co. 38-39
Associated Research, Inc. 15
Association of American Railroads 103
Biddle, James G., Co. 37
Buchanan Electrical Products Co. 8
Chase Supply Co. 40
Dana Corp. 20-21
Dayton Rubber Co. 5-6
Delco-Remy Div., General Motors Corp. 61
Edison, Thomas A., Inc. .... 18 and 45
Electric Storage Battery Co. 58-59
Equipment Research Corp. 13-14
Fairbanks, Morse & Co. 1
Farr Co. 22-23
General Electric Co. 52-57
Gibbs, W. M., Railway Supply Co. 100
Gould-National Batteries, Inc. 83-84
Helwig Co. 89
Hewson Co. 79
Ideal Industries, Inc. 42
Joy Manufacturing Co. 34-35
K. W. Battery Co. 24
Leece-Neville Co. 88
Line Material Co. 49
Luminator, Inc. 9-10
Mars Signal Light Co. 85
Minneapolis-Honeywell Regulator Co. 90
Modern Railroads 36
Motorola Communications & Electronics, Inc. 50
National Carbon Co. 28-29
National Electric Coil Co. 16-17
National Electric Products Corp. 19
Nickel Cadmium Battery Corp. 80
Nife, Inc. 86-87
Ogontz Controls Co. 82
Okonite Co. 91-92
Pyle-National Co. 46-48
Railway Equipment & Publication Co. 101
Railway Locomotives and Cars 17
Railroad Parts Service Co. 25
Railway Purchases & Stores 104
Safety Industries, Inc. 11 and 30-33
Sonotone Co. 41
Sticht, Herman H., Co. 12
Thomas & Betts Co. 60
Trane Co. 43-44
Vapor Heating Corp. 2-4
Waukesha Motor Co. 26-27
Westinghouse Electric Corp. .. 81

Action on Loose Packing Protested

By C. M. HOUSE

General Superintendent of Motive Power and Car Equipment, Gulf, Mobile & Ohio

The columns of Railway Age are always open for the expression of readers' views. The opinions in this article are, we believe, at variance with those of some other railroad men. Other readers are invited to express their views on this subject.

The recent action of the AAR Mechanical Division in releasing for letter ballot the proposition to prohibit the use of loose journal-box packing, and to adopt as AAR standard practice the use of approved designs of journal lubricating devices, appears to many of us as asking the railroad industry to buy a "pig in a poke."

We are asked to approve, and mechanical officers by letter ballot did approve, as standard practice devices which have not yet been approved by the Committee on Lubrication of Cars and Locomotives—except on a limited basis for test purposes.

No Proof of Merit

No one has yet furnished us any data to prove that the devices to be adopted as standard practice have substantial merit, or that they will in any manner contribute to reduced service attention, or to a reduction in the incidence of hot boxes.

Service test data on a number of lubricating devices have been quite discouraging. In some instances, the lubricating devices have been less satisfactory and have resulted in more hot boxes than was experienced with journal-box packing.

What is going to be the cost of the adoption of these lubricating devices? The one cost which is definitely established is the initial purchase and installation cost. It will require at least $100 million to equip the two million cars now in service. Service life and replacement costs are anybody's guess. No one can be certain since none of the devices has accumulated enough service to make a reasonably accurate estimate of life expectancy or maintenance costs.

Many claims are being made that the devices will last six or more years, and a rosy picture is being painted concerning the ease of reclamation. We have seen a considerable number of these devices that were in need of replacement after only a few months' service. We have not been furnished any information as to what constitutes satisfactory reclamation, or advised how it is to be accomplished. Are we going to be replacing the majority of these devices at the first 18-month repack period? This, quite probably, is what is going to happen in many instances. The consequent increase in operating expense is going to be difficult to explain.

Assuming that some of the devices last long enough to be reclaimed after being removed at the repack period, how will they be reclaimed? By reading the advertising brochures one would be led to believe that all that will be necessary will be to swish the device in a bucket of warm oil. Many of us who have been around for more than a few years remember when that was the accepted method of reclaiming packing. We don't believe any thinking mechanical officers are naive enough to believe that such reclamation procedures are satisfactory. We are not ready for special lubricating devices until we have acceptable methods and standards for their reclamation.

We are certain that some of the devices now under test are going to give disappointing results. They will undoubtedly fail for various reasons, such as inadequate wicking ability, loss of resiliency, severe tendency to shift and displace in the journal boxes, wear from collar contact, and wear from movement in the journal box. Until the devices have been developed to such a degree that several are known to give satisfactory performance, and may be substituted for each other, we have no sound basis for making their use mandatory.

Some journal boxes in interchange service are of such dimensions that most of the lubricating devices now under test will definitely not work satisfactorily. We have checked and found in service boxes with a depth of 1½ in. greater than the maximum AAR standard dimensions. There are also boxes that are smaller than the AAR standard dimensions. What are to be used in these boxes, or will they be barred from use in interchange?

Loose Packing Not Adequate

We are not satisfied with loose journal-box packing as a lubricating medium, but it at least provides a workable standard. It surely is a step backward to leave a workable standard to adopt a completely unworkable one.

Then there is the matter as to how these devices are to be handled in interchange. We have given considerable thought to this phase of the problem without arriving at any satisfactory answers. When it's necessary to replace a lubricator, will it have to be replaced in kind, requiring possibly fifteen different brands of lubricators to be stocked at every terminal? What credits will be allowed for lubricators removed at repack? It surely is going to be necessary to have some answers to many questions of this kind in the near future. Truly, the answers should have been available before the letter ballot.

Being as charitable as we are able to be, the best that can be said is that the action was premature.

We are becoming concerned over

these decisions to make items and practices mandatory with little or no service performance. We have departed from a procedure that has been working satisfactorily for many years; namely, suggested rule changes were first approved by subordinate committees, then approved by the General Committee, after which they were presented and discussed in open convention, and then finally submitted to letter ballot.

Granted that at times this procedure entailed some delay, at least it gave opportunity for complete exploration and full discussion and went a long way toward eliminating obvious faults and helping to secure a unanimity of opinion.

Generally, in the past, AAR Mechanical Division letter ballot items have been so firmly supported by experience, and so carefully explored prior to presentation, that the mechanical officers have become accustomed to voting in the affirmative.

We are convinced that, if more mechanical officers had been fully acquainted with the meager service data and background available on these two propositions, many would have voted in the negative, rather than the affirmative vote cast through habit.

The Mechanical Division's handling both of the "Controlled Clearance Bearings" and "Lubricating Devices" was a departure from previous procedures and was unusual. Both ballots passed by small majorities. This is an undesirable situation and could easily lead to a breakdown in compliance with AAR Interchange Rules.

No law or rule is generally enforceable unless the preponderant majority believes it to be sound. No clearer example of this should be needed than the breakdown of our federal law observance which occurred after the passage of the 18th Amendment.

We hope that an analogous situation does not develop in connection with the association's Interchange Rules.

Since a definite effective date has not yet been established for the mandatory use of lubricating devices, it is sincerely hoped that such action will be delayed until a firm, factual basis for action has been developed, suitable interchange rules formulated, and sufficient information released well in advance to justify the action taken.

Railroading

After Hours

Diesel History

A few weeks ago the Electro-Motive people had a dinner at the Blackstone Hotel in Chicago, in honor of H. L. Hamilton, their retired vice-president. Nelson Dezendorf presided—and speakers included Fred G. Gurley, "Boss" Kettering, Cy R. Osborn, and the guest of honor.

What Mr. Hamilton said to us was of historic importance—and it's a lucky thing for posterity that there was a tape-recorder on the job to take it down. Mr. Hamilton told briefly, but completely as to essentials, the story of the adaptation of the internal combustion motor to effective railroad use—leading to the greatest technological revolution in the history of the railroads.

The question is often raised around the railroads about whose job is it, anyhow, to do research and development. In the telephone business, the company that uses the equipment is also largely responsible for research and development. The railroads have been criticized for not engaging more actively than they have in such endeavor.

by James G. Lyne

Editor, Railway Age

In the case of the diesel locomotive, practically all of the development took place "outside." Mr. Hamilton had both railroad and automotive experience—and he drew from both industries the background of experience that gave him the idea for the gas-electric rail car. But was all this a conscious process of logical reasoning? No, said Mr. Hamilton.

"There is an inward controlling inherent knowledge that guides your decision and you can't define it other than a conviction that you know the answer is the right one. . . . We were dealing with the unknown. . . . We were working metal harder than it had ever been worked before. We were marrying metals that didn't know whether they would live together or not. . . . In many cases we found out, to our distress. Anyway, we were pioneering. It was through that method, exploring the ultimate in every possible direction, that we created the diesel locomotive and brought it along."

Isn't the railroads' "research problem" that of getting such pioneers to work on all important railroad problems? If they're working on them from the "outside"—well and good. If not, then effort should be exerted to get them working on the "inside." It's the pioneering, not where it goes on, that's important.

That Barriger Book

And, speaking of pioneering, we've been doing a little in a modest way on our own account during the past few months, in getting and processing the manuscript of John Barriger's book on "Super-Railroads" into print.

There are a lot of railroad people who know what top-grade railroading consists of in their own department—but how many of us could go through all the major physical aspects of railroad plant and define maximum accomplishment in each? To attain such a goal completely is probably impossible—but I suspect John Barriger has come as close to it as anybody has done in a good long time.

The first step toward achieving the best there is lies in knowing *what* the best is— not in one department but in all of them. John Barriger's manuscript was an eye-opener and imagination-stretcher for me, and I suspect it would do the same service for almost anybody else.

RAISING $20 BILLION for needed equipment and facilities over the next ten years poses a formidable task for the railroad industry, agrees W. Arthur Grotz, president of the Western Maryland. A railroader with a banking background, Mr. Grotz has analyzed this financial puzzler and come up with some timely ideas on. . . . .

Where the Money's Coming From

When President J. M. Symes of the Pennsylvania suggested last fall that the railroads will need to spend $20 billion to keep pace with the nation's growth over the next decade, he left unanswered one basic question: How can the rail carriers, or any private industry for that matter, raise such an enormous amount of new money?

A few days ago in Chicago, Western Maryland President W. Arthur Grotz took this question for his text. Speaking at the annual meeting of the American Association of Railroad Superintendents, Mr. Grotz accepted Mr. Symes' $20 billion figure as "roughly the amount needed."

Then he went ahead to examine possible sources for such funds and the "atmosphere" that must be developed if so great an amount is to be raised. As Mr. Grotz sees this task, it a tri-partisan one, involving individual railroads, the investing public and government.

Producing Railroad Cash

"As to internal cash production of the railroads themselves, there are three broad areas to consider," Mr. Grotz declared. These areas, he said, are successful and economical operation, depreciation accruals, and what might be termed "financial policy and financial public relations."

Mr. Grotz finds the first of these areas elusive, depending, for example, on how many more miles per day operating men can wring from the car fleet. He pointed out that a one-day saving in turnaround time could equal suddenly finding 100,000 freight cars which, at $8,000 each, would add up to $800 million.

On depreciation accruals, Mr. Grotz was more specific. He noted that depreciation of way and equipment in 1955 amounted to $535 million. As new equipment and depreciable facilities raise the base this annual rate will increase.

"Perhaps," he said, "we may assume a total of $7.5 billion of the $20 billion will come in this rather painless manner."

The third area of internal cash production, Mr. Grotz continued, involves long-range planning, the attitude toward debt creation or debt reduction, possible sales of added preferred or common stocks, and the desirable percentage of net income to be distributed as dividends.

> **"The creation of added debt by our industry should not be discouraged as a matter of course," Mr. Grotz declared. "It should be positively encouraged if it will result, as I am sure it can in the majority of railroad situations, in so adding to earnings available for fixed charges as to improve the overall credit picture."**

Probably about 50% of railroad net earnings can be plowed back in the next decade without jeopardizing good investor relations, Mr. Grotz said. Assuming such earnings will be at the 1951-1955 level, this plowback will be about $4 billion.

With depreciation and plowback accounting for $11.5 billion of the $20 billion, there remains some $8.5 billion which must be obtained outside the railroads — and an intangible thing called "atmosphere" will play a decisive part in railroad efforts to obtain such funds, Mr. Grotz continued.

Building a favorable atmosphere to attract investors is no simple task. As the Western Maryland executive pointed out, it involves the correction of outmoded government regulation, improvement in the "deteriorating position of common carriage in our total economy," and the exercise of statesmanship in labor relations.

"During the next few years we will all be on our mettle to demonstrate to shippers and investors alike, by our own actions and attitudes, by our flexibility of thinking, that the railroad industry is entitled not only to survive but to grow," Mr. Grotz declared. "Certainly opportunities for growth will be on every hand."

Getting $8.5 Billion

"I am inclined to believe that not more than 10% (of this amount) will be raised by sale of stock," Mr. Grotz went on. He suggested, however, that "perhaps all of it can be raised by borrowing from the public."

But with railroad debt already in the neighborhood of $10 billion, and with the prospect of future debt carrying higher interest rates, earnings available for fixed charges would have to double in order to assure against a weakening of credit.

"Moreover," Mr. Grotz added, "a net increase of $8.5 billion in debt would require the sale of perhaps $12.5 billion to offset inter-

HALE H. CLARK, superintendent transportation, Erie (right), the new president of the AAR Superintendents, with his predecessor, George M. Leilich, vice-president operations, Western Maryland.

vening serial maturities and sinking funds, even assuming all principal maturities of bonds during the period were extended at maturity.

"I am inclined to believe that $12.5 billion could be obtained from the public on favorable terms only under the atmosphere of decidedly positive government policies."

Government's Role

In the field of long term planning, government and railroads should work to develop a way of evening out the "feast or famine" characteristics of railroad purchasing, Mr. Grotz suggested. He raised the question of whether track and equipment expenses might not be stabilized in part by the application of "equalization reserves" on a three or five-year basis.

Turning to the "landmark" of tax exemption, Mr. Grotz said one answer to the question of tax relief for soaring replacement costs may be suggested by one of the replacement theories already recognized in taxation.

"One theory has to do with the deferment of taxation on the gain involved in the sale of a residence. The original cost of a dwelling that has been sold is carried forward as the cost of the replacement dwelling. Another theory has to do with the replacement of rail in track — replacement in kind.

"It seems to me that the examples of the residence and the rail indicate a principle that so long as funds remain in the enterprise, dedicated to its public service, there has been no realization of a profit merely because the physical pieces of rail or residence, or even freight cars, have actually turned over."

"This approach involves the relative merits of depreciation accounting versus replacement accounting," Mr. Grotz continued. "It seems to me that depreciation accounting is premised upon a stable price level and that it may well be less useful than replacement accounting when price levels change considerably, as they have in recent years."

Illustrating his point, Mr. Grotz said that if railroads wished to buy 80,000 freight cars a year for the next 10 years, and if the average difference between the depreciation base and replacement cost exceeded $5,000 per car, expensing the difference for tax purposes would mean at least $400 million a year less taxable income.

"The cash assistance to the railroads' replacement program would be more than $200 million annually, or more than $2 billion over the next 10 years," he added. "Extend the theory to replacements other than freight cars and you will swell the potential $2 billion to an even more important aid."

Examining the government's role in the light of accelerated amortization — the only device so far applied to the railroads — Mr. Grotz said the program actually made a great difference in recent years.

"The total purchases under the tax aid of accelerated amortization for the years 1950-1955, inclusive, amounted to $4,936,057,000 for diesels, freight cars, other equipment, yards and signals, and road property," he said.

"It is a serious question whether the railroads would, or indeed could, have borrowed the additional $1,440,000,000 which I estimate to be ultimate tax deferment by accelerated amortization in the period of 1950-1955."

Convention Report

Elsewhere in their three-day Chicago meeting, members of the superintendents' association heard H. E. Gilbert, president of the Brotherhood of Locomotive Firemen and Enginemen, call for "better understanding between railroad management and employees."

"Employee morale is a concern we share in common," Mr. Gilbert declared. "We may differ in methods of approach but unions are striving to create conditions which improve the morale of railroad workers, just as we believe it is an obligation of management."

He urged that railroad officers at the superintendent and trainmaster level meet the challenge of improving human relations because, as he put it, "it is here the element of personal contact between the higher level of management and the man on the job can go to work."

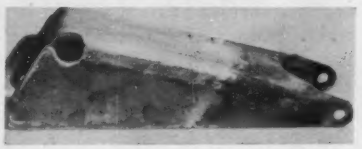
By cultivating "neighborliness on the job," by making the employee feel he is personally essential to the company, management can do much to enlist the support of the million-plus railroad employees in the bid for public understanding, he said.

Officers of the association for 1956-57 include J. A. Craddock, superintendent, Lackawanna, first vice-president; M. B. Phipps, vice-president of operations, Nickel Plate, second vice-president; E. O. Daughtrey, superintendent, Frisco, third vice-president; R. F. Jeter, superintendent, Chicago terminal, Gulf, Mobile & Ohio, fourth vice-president; and D. E. Ferner, superintendent transportation, Chicago South Shore & South Bend, treasurer.

WHAT'S NEWS in Products

ALKALINE CLEANER

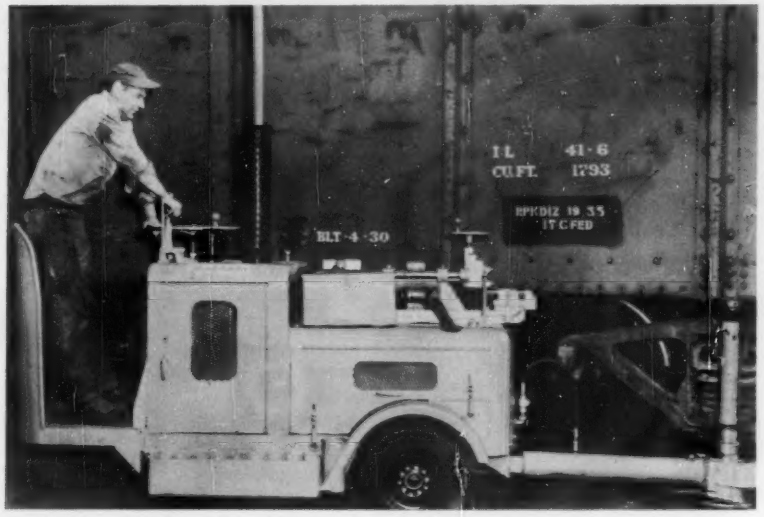
An alkaline material for the removal of rust, paint and primer in one dip, followed by a rinse operation, has been named Turco Alkaline Rust Remover. The powdered compound is claimed to eliminate four of the six steps required for rust and paint removal by conventional methods. This rust remover is said to take off light rust in less than a minute. Heavy rust and multiple paint layers usually require only a few minutes immersion. Even such paint deposits as red oxide primer, baked lacquer, acid-proof



paint and asphalt finishes yield to this material.

Turco Alkaline Rust Remover contains no cyanide compounds. It does not require complicated electrolytic equipment nor does it emit corrosive fumes. Hazards commonly encountered when charging acid tanks are eliminated. It is said that it will not affect dimensional tolerances or cause hydrogen embrittlement. After cleaning, no after neutralization is required—only pressure rinsing. Metals cleaned with acids will normally rerust unless they are further processed or coated with a rust preventive. Metals derusted with Turco Alkaline Rust Remover are said to be no more subject to rusting than is new metal.

Railroad cleaning jobs using this material include diesel exhaust manifolds and "A" frames, injector parts, steam generator coils, stockpiled castings, stored parts and protected and unprotected cold and hot rolled steel. *Turco Products, Inc., Dept. RA, 6135 South Central ave., Los Angeles 1* •



BRASS TRIMMER AND JACK

The self-propelled combination journal jack and brass trimmer, the Yu-Brasser, has been redesigned. The improvements include a car lift extension for the journal jack, dual wheels front and rear, and center mounting of the brass shaper.

The Yu-Brasser is a complete mobile car inspection unit, hydraulically driven and operated. With it, one man can jack up journal boxes, remove and trim brasses, open oil rolls and replace brasses. The car lift extension makes it possible to also lift the car weight off the side bearing and center plate for inspection and greasing. This car lifting extension fits on the Yu-Brasser journal jack.

The operator controls spotting and lifting of the extension from the steering platform. Center plate inspection and greasing has been done in about nine minutes. Extention height is adjustable so no blocking is necessary, and the jack can be released only from operating platform.

Dual wheels front and rear increase YU-Brasser stability and improve operation on unpaved surfaces. Shaper for trimming journal brasses is now mounted lengthwise of the Yu-Brasser hood so it may be used equally well from either side. Hood serves as handy work bench. *Yuba Manufacturing Company, Dept. RA, 55 New Montgomery st., San Francisco 5* •

PORCELAIN ALUMINUM CEILINGS

Headliners or ceilings of porcelainized aluminum, as well as advertising racks, are now being used in New York subway trains. The enamel, a vitreous, inorganic coating, is bonded to the aluminum alloy at red heat and is said to render the metal impervious to corrosion. According to the manufacturer, the finish will not fade, stain, rust or discolor.

Because of its permanent finish, it never needs repainting and maintenance is low since a mild detergent can clean it. Aluminum's resistance against alkalies and thermal shock is also fortified by the enamel. The product is available in a variety of colors. *Sorkin Enterprises, Dept. RA, 11 Broadway, New York 4* •

STRUCTURAL PANEL MATERIAL

A honeycomb structure of stainless steel forms a material for construction where light weight, high strength, and resistance to weathering and corrosion are required. Its uses include prefabricated panels and doors, desk tops, furniture; and walls, ceilings and partitions in railway cars.

The stainless steel produces a

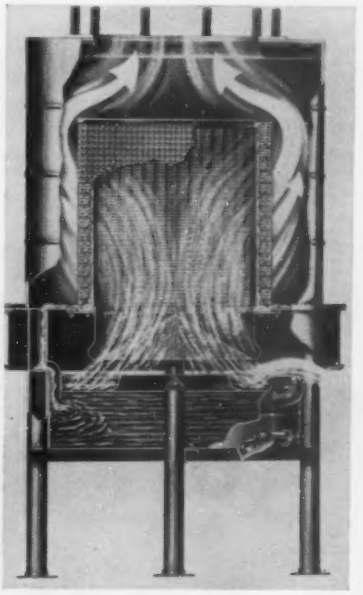
WHAT'S NEWS in Products

honeycomb said to be as light as one made of aluminum. Aluminum used in thickness ranges from 0.003-in. to 0.006-in. is now replaced by stainless steel in thickness ranges from 0.001-in. to 0.002-in. The strength of stainless steel is said to provide a greater strength-to-weight ratio for the honeycomb as well as adding resistance to temperatures up to 1,200-deg F. The sandwich structure shows better tensile compressive, and shear strength and greater dimensional stability, and moisture resistance. *American Silver Company, Dept. RA, 36-07 Prince st., Flushing 54, N. Y.* •

LONG-LIFE BATTERIES

Batteries which feature high instantaneous discharge rates have been designed for stationary power applications on railways and in industrial plants. They are enclosed in heat-resistant polystyrene jars. Insulation between plates of opposite polarity consists of one-piece polystyrene dowels and microporous rubber separators.

The jars are designed so as to provide increased volume of electrolyte. Additional electrolyte reduces the need for water addition to replace evaporation. An exclusive feature is the positive plate consisting of a cast lead antimony grid into which buttons of pure lead are permanently locked and then coated electrochemically with lead peroxide. *Exide Industrial Division, Electric Storage Battery Company, Dept. RA, Box 8109, Philadelphia 1.* •



OIL BATH AIR FILTER

Extremely low pressure loss and high efficiency are features of this Model LPD oil bath air filter. Low pressure drop operation is achieved without any moving parts or outside energy supply.

The device can be utilized for a broad range of compressors, blowers and engines.

The filter is said to reduce energy requirements, making it possible to eliminate power-consuming motors. This is accomplished by reversing the conventional oil and air circuit. The air-flow regulator tube is preset at the factory so that, within the filter's rated capacity range, air velocity will be sufficient to insure full oil washing, yet keep pressure drop low. These units come in four capacity ranges for variable speed engines and compressors. *Air-Maze Corporation, Dept. RA, 25000 Miles road, Cleveland 28* •

UTILITY LANTERN

This Radar-Lamp for all types of outdoor use features a cottage-type light-head incorporating a 2½ in. by 2½ in. circular chimney which throws a wide circle of light. It was designed to furnish supplementary illumination for repair crews, construction gangs and as an emergency light source for industry, buildings and civil defense purposes.

The lantern is windproof and weatherproof and utilizes a positive action silver contact switch as well as a standard auto lamp bulb. It incorporates two standard 6-volt batteries wired in parallel. The battery is self-contained and eliminates the conventional separate battery case.

The battery, sealed in reinforced steel, is attached to the lantern light-head by two insulated screw caps. No wires or spring contacts are needed to connect lantern to battery. *Burgess Battery Company, Dept. RA, Freeport, Ill.* •

EXPANSIBLE COMPOUNDS

Two thermosetting, self-curing polyisocyanate foams for insulating and reinforcing voids between structural members have been designed as Scotchfoam Expansible Compounds Type A and Type 1. They are adapted to filling cavities where light weight, structural strength, stiffening, vibration dampening, and durability are desirable factors.

Both compounds are a two-part liquid formulation which, when mixed with a catalyst under proper

conditions, can be foamed-in-place to produce a rigid cellular material that will not break loose, settle or sag. Application may be made by pouring or spraying. Scotchfoam 1 has a volume expansion of approximately 20 to 1.

Design advantages are said to include low weight factor, adhesion to many types of surfaces without the need for supplementary adhesives or mechanical fasteners, curing without heating, freedom from fire hazard during application, and applicability to irregular surfaces without necessity of cutting and fitting operations.

These low density polyisocyanate foams have good structural strength, thermal stability, and insulating properties (thermal, acoustical, electrical), adhesion to most metals, plastic, wood, glass and ceramics. They are insoluble in water and most petroleum products and chemical resistance is considered generally good. Type 1 polyisocyanate foam can be applied between exterior and interior floor panels on railroad passenger cars for sound deadening and insulation. *Minnesota Mining & Manufacturing Co., Adhesives and Coatings Division, Dept. RA, 411 Piquette ave., Detroit 2* •

POWER-GROOVE FLUORESCENT LAMPS

New fluorescent lamps are said to have double the light output of present tubes of equal length. This is a result of a change in tube design, comprising a series of lengthwise dents or grooves along one side of the 8-ft long fluorescent tube. At the grooves, the tube is nearly U-shaped in cross-section to obtain maximum circumference while constricting its inside area.

Greater light output results from an increased area of the lighted surface, the higher wattage at which it can be operated and more efficient use of energy within the tube. New ballasts have been designed and new fixtures will have to be designed to accommodate the lamp. It will be used in new installations, and not for replacements in existing fixtures.

The lamps are expected to extend the use of fluorescent lighting into areas which heretofore have used incandescent and mercury sources. Basic lengths of the lamps will be 8 ft, but 4 ft lamps will be available to fill in where necessary. The lamp is 2⅛ in. in diameter and is rated at 200 watts. *General Electric Company, Nela Park, Dept. RA, Cleveland 12* •

PORTABLE PAINT PUMP

This paint-handling device is built with materials resistant to solvents found in paints. It is said to be ideal for use in a large or small circulating system. The pump, P-QBF, is made in several models to fit individual needs. They will handle material direct from a 55 gal drum, eliminating the need for frequent refills and reducing spillage and wasted paint. One model has a 10 gal hinged lid tank.

Operated by compressed air, it requires no wiring. Air consumption is low, with less than 100 lb pressure required for volume discharge. In operation, the double action pump, delivering material on both the up and down stroke, provides a constant supply of fluid. As many as 18 spray guns can be supplied with more than 1 qt of material per min. The pump is equipped with a controlled by-pass for the recirculation of paint. Lubrication is accomplished automatically by a mist-type oiler which controls the oil introduced into the pump motor. *DeVilbiss Company, Dept RA, 300 Phillips ave., Toledo 1, Ohio* •

FOAMED PLASTICS DISPENSING UNIT

Assembly line production of cellular foamed plastics for use in building refrigerated rolling stock has been made possible with the Nopcometer, an automatic metering, mixing and dispensing unit.

The device is said to deliver to the production line, automatically and intermittently, a predetermined charge of foam of any required density at varying rates up to 15 lb per min. The manufacturer believes that the unit will expand the use of foamed plastics as thermal insulating materials in all kinds of refrigerating equipment. *Nopco Chemical Company, Dept. RA, Harrison, N. J.* •

SUPERVISORY CONTROL EQUIPMENT

A supervisory control system, Type DOS-3, has been designed to provide reliable, economical, and compact centralized control for electric power stations and railway installations. With this equipment, one operator can supervise and control many valves, pumps, motors, generators or any other devices which can be operated elecrically. It is available in two ultimate capacities, 25 and 50 points.

The system, with its combined "select-and-operate" control and automatic interrogation indication, permits serving many remote stations economically. Only a small amount of common equipment is required for each station. The number of remote stations that can be served is limited only by the ultimate

capacity of the system. For example, as many as 50 remote stations can be served by the 50-point system. The complete 25-point system for d-c operation requires only one case 17½ by 12¼ by 8¾ in., plus panel space for escutcheon plates. Two of these cases house the basic equipment for the 50-point system. Either system can be operated from 48 or 125 volts d-c. With an appropriate power supply, this equipment can also be operated from 117 volts a-c. *Motorola Communications and Electronics, Inc., Dept. RA, 4501 West Augusta blvd., Chicago 51* •

NON-SKID TREAD PLATE

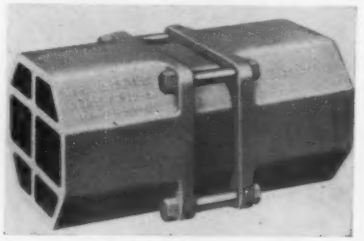
This non-skid abrasive aluminum tread plate is said to provide sure footing even when covered with oil, grease or water. It is designed for such applications as coach steps and aisles, runboards and catwalks.

The product is rolled from ingot by a method which provides a fused aluminum abrasive oxide on one surface of the plate. The layer of abrasive is metallurgically bonded to the aluminum plate. In welding, the abrasive layer does not separate from the plate. The non-skid surface has proved valuable in preventing slippage on trucks carrying wet cargoes and at industrial locations where oil may collect on floor surfaces. Durable and corrosion-resistant, it can be shop fabricated by most commercial methods, including shearing, sawing, punching and drilling. *Aluminum Company of America, Dept. RA, Alcoa Building, Pittsburgh 19* •

FLUORESCENT FLOODLIGHT

A fluorescent floodlight designed for outdoor applications is the G-E fluoroflood. The new fixture combines many of the features of fluorescent and floodlight units to produce a high level of evenly distributed light over a wide area. The 8-ft rapid-start lamp generates 7,250 initial lumens and offers all-weather illumination. An acrylic plastic cover is available and is recommended for installations in cold climates or during winter. The cover is said to protect the lamp from drafts which materially reduce its light output at low temperatures. The fixture is designed to house the 96T12/CW/RS rapid-start fluorescent lamp which has been specially engineered for outdoor cold weather applications. The fluoroflood has been engineered to withstand the effects of storm and wind damage. It weighs seven pounds, and is said to be easy to install.

The unit is suitable for a number of outdoor applications, including parking lots, tunnel entrances, outdoor advertising poster panels, loading platforms, and other areas where a low cost, short range light source is desired. *General Electric Company, Dept. RA, Outdoor Lighting Division, Hendersonville, N. C.* •



ALL-RUBBER DRAFT GEARS

A newly certified line of all-rubber draft gears is available in two classes—FR-24-58 which has an assembled length of 24⅝ in., and FR-20-18 which has an assembled length of 20⅛ in. Either size can be used either on freight cars or locomotives.

No followers are required with the FR-24-58 gear. The shorter design uses two follower plates per gear, which are of the standard type used in the majority of existing draft gears.

Both of the draft gears have a rated capacity of 34,875 ft-lb at 2¾-in. travel. The gears utilize patented rubber units for lading protection and have compression characteristics to furnish slack-free train operation for years. The draft gears are manufactured as self-contained units, precompressed for easy application to cars or locomotives. *W. H. Miner, Inc., Dept. RA, 209 S. LaSalle st., Chicago 4* •

EMERGENCY UPGRADING PAPER

An upgrading paper designed to be put in place by personnel "armed" with hammer tackers is being marketed. The paper is made of Fiberglas-reinforced Kraft paper. It is supplied in units consisting of six lengths of paper, each 12 in. wide. Two lengths measure 45 ft each, the other four lengths are 8 ft each. Each 45-ft length seals the wall-floor junction around one end of a car from door to door.

The 8-ft lengths are used to seal the corners where side and end walls meet. Extra paper is included in each unit for covering floor and wall cracks. *A. J. Gerrard & Co., Dept. RA, 1950 Hawthorne ave., Melrose Park, Ill.* •

DECORATIVE METAL LAMINATE

The bulkhead and partition installations in four of the car interiors of "Train X" are made of Col-O-Vin metal laminate—a vinyl laminated to aluminum which it is said produces high tensile strength with little weight and to be virtually indestructable. The vinyl used is Cerulean Blue in a Munster design. It is resistant to fire, scuffing and abrasion.

Col-O-Vin laminates can be machined on such existing standard equipment as the forming or stamping machine. There is no rupture or loss of adhesion or color when such forming as 90-deg crimp bends is done.

The vinyl sheeting is supplied in many colors, and in such finishes as glossy, matte, grained, marbled, printed, woven or textured, can be laminated. *Columbus Coated Fabrics Corporation, Dept. RA, Columbus, Ohio* •

HIGHLIGHTS FROM ANNUAL REPORTS OF 36 RAILROADS†

Railroad		Operating Revenues	Operating Expenses	Fixed Charges	Net Income	Current Assets*	Current Liabilities*	Long Term Debt*
Ann Arbor	1955	$ 9,323,481	$ 7,434,272	$ 223,843	$ 847,363	$ 3,989,979	$ 958,914	$ 5,620,032
	1954	8,735,256	7,155,586	232,274	512,015	3,621,902	895,884	5,992,523
Atlanta & St. Andrews Bay	1955	4,053,022	1,847,038	15,240	766,742	2,150,015	1,194,137	.....
	1954	3,758,963	1,751,836	15,006	730,604	2,189,572	1,275,630	.....
Atlantic & Danville	1955	1,651,135	1,247,225	84,902	64,312d	400,902	425,022	3,142,613
	1954	1,583,803	1,315,006	44,650	177,808d	351,826	446,274	2,982,722
Canadian Pacific	1955	448,598,491	411,271,773	16,188,820	44,032,465	207,285,945	89,795,283	169,651,000
	1954	422,642,423	395,609,497	15,041,997	29,826,248	181,235,631	72,104,164	172,793,500
Central of Georgia	1955	43,159,176	34,538,836	1,203,767	3,183,913	14,257,666	7,094,199	46,248,687
	1954	40,020,822	32,576,266	1,187,227	2,893,649	13,905,278	7,107,721	47,293,306
Chicago, Burlington & Quincy	1955	249,226,272	190,704,931	6,634,178	22,157,846	92,824,233	50,449,653	218,038,191
	1954	252,352,714	190,333,761	6,643,190	23,011,720	86,140,730	47,524,094	216,880,462
Chicago Great Western	1955	34,487,222	22,985,789	975,592	3,224,013	12,176,161	8,523,710	28,544,519
	1954	32,657,522	22,665,223	992,542	3,057,510	10,589,691	6,408,564	29,404,991
Chicago, Rock Island & Pacific	1955	189,381,739	143,207,475	3,969,100	16,988,157	64,609,357	40,739,426	156,826,392
	1954	187,062,645	141,604,751	3,145,099	15,657,137r	57,614,268	34,657,112	97,788,751
Detroit, Toledo & Ironton	1955	21,039,176	13,302,612	451,071	6,286,997	7,794,563	3,401,021	15,122,657
	1954	17,705,072	13,229,611	501,846	3,722,956	6,087,898	2,442,009	16,832,610
Elgin, Joliet & Eastern	1955	50,402,793	30,585,169	550,386	6,953,338	21,021,740	20,189,962	16,146,800
	1954	43,231,911	35,192,514	587,923	1,977,472	9,549,638	12,077,830	17,809,600
Great Northern	1955	267,095,219	194,441,417	8,121,840	32,063,925	121,936,256	56,065,434	267,330,764
	1954	250,254,361	188,621,367	8,095,403	25,441,459	102,171,278	43,649,214	274,351,053
Jersey Central	1955	58,314,048	46,143,727	4,431,898	1,020,866	17,680,997	9,791,207	62,263,622
	1954	56,502,122	44,957,435	4,513,698	14,584	17,140,357	9,026,018	68,577,771
Kansas City Southern	1955	45,585,191	25,840,753	1,834,826	6,504,438	22,067,090	15,301,465	59,032,580
	1954	40,809,847	24,121,828	2,285,628	6,138,880	19,167,857	12,957,393	60,430,993
Lake Superior & Ishpeming	1955	5,935,044	3,382,708	29,086	1,490,058	4,155,852	1,679,650	813,150
	1954	3,449,185	2,636,867	33,308	615,429	2,628,304	784,033	938,250
Lehigh & Hudson River	1955	3,168,592	2,186,810	7,399	312,521	1,099,242	578,835	307,773
	1954	3,223,716	2,208,688	9,696	417,938	1,149,020	414,189	422,613
Long Island	1955	61,049,197	52,224,662	1,020,465	636,323	15,567,735	12,194,973	90,807,174
	1954	56,466,928	50,688,079	1,922,910	3,542,934d	13,554,332	10,535,734	73,981,602
Louisville & Nashville	1955	181,206,433	140,756,231	9,028,676	24,637,846	80,787,784	29,659,967	266,365,481
	1954	196,841,708	161,062,530	9,246,887	18,926,644	84,533,788	22,392,735	273,114,291
Minneapolis, St. Paul & Sault Ste. Marie	1955	41,615,779	33,079,561	299,530	2,411,496	21,098,843	12,072,281	29,662,964
	1954	39,189,611	33,455,323	137,364	1,592,354	17,473,454	9,265,400	30,735,776
Monongahela	1955	5,529,791	3,516,402	528,166	4,814d	1,080,162	1,194,363	10,792,671
	1954	5,622,691	3,751,113	535,594	341,985d	1,272,297	1,212,535	11,299,822
Nashville, Chattanooga & St. Louis	1955	30,091,368	25,018,583	1,691,043	1,742,374	14,765,127	5,019,041	25,259,888
	1954	35,955,311	27,120,723	1,862,121	3,232,714	16,594,554	5,996,042	27,421,557
New York Central	1955	762,666,356	603,721,215	48,384,370	52,283,814	211,656,000	143,051,815	809,102,678
	1954	708,729,962	596,221,889	47,325,402	9,187,509	169,865,062	124,626,627	800,641,118
New York, Chicago & St. Louis	1955	162,296,845	110,090,844	5,148,485	16,686,927	62,919,436	36,116,798	159,826,190
	1954	144,921,630	101,980,178	5,529,243	14,460,872	53,403,844	30,378,894	125,795,710
New York, Ontario & Western	1955	5,677,014	6,095,060	1,472,893	3,291,330d	910,165	11,541,078	37,977,181
	1954	5,903,042	6,187,281	1,480,057	3,086,184d	894,365	10,063,768	37,986,291
Norfolk & Western	1955	208,891,162	138,719,685	1,432,436	38,630,610	107,112,678	49,271,348	35,791,700
	1954	170,059,738	125,630,415	1,441,284	26,291,200	73,981,838	31,171,410	35,791,700
Norfolk Southern	1955	10,282,400	7,936,460	272,255	616,584	3,257,879	1,917,989	5,393,681
	1954	9,869,545	8,218,695	274,653	356,076	2,538,923	1,311,515	5,273,630
Peoria & Pekin Union	1955	2,867,224	2,077,017	63,960	300,169	2,202,507	1,084,376	2,004,242
	1954	2,654,757	2,030,685	67,951	305,701	1,895,723	915,677	2,083,739
Richmond, Fredericksburg & Potomac	1955	26,274,073	17,619,478	107,411	3,331,977	12,756,975	5,966,172	2,768,255
	1954	25,848,462	18,164,324	124,853	3,222,047	10,894,565	5,208,378	3,534,092
Rutland	1955	4,811,335	3,957,306	22,578	272,197	1,222,389	483,157	438,176
	1954	4,551,087	4,056,724	24,075	122,911d	1,058,608	373,540	543,626
Savannah & Atlanta	1955	3,579,122	2,338,501	100,273	483,173	1,979,056	1,313,986	2,029,679
	1954	3,591,428	2,375,030	114,489	509,272	1,644,477	1,133,160	2,174,679
Spokane International	1955	3,586,245	1,884,884	50,293	600,903	2,503,750	1,496,736	3,960,586
	1954	3,255,059	1,872,810	53,565	505,330	1,726,044	950,855	3,697,819
Tennessee Central	1955	5,162,775	3,696,868	318,090	242,256	1,781,101	1,488,014	7,838,519
	1954	4,585,400	3,588,225	331,989	2,323	1,408,793	1,251,821	8,175,462
Toledo, Peoria & Western	1955	7,033,688	4,410,225	67,331	767,356	3,563,852	1,184,430	8,219,594
	1954	6,806,211	4,466,117	71,747	641,168	3,024,497	2,074,514	7,806,438
Union Pacific	1955	509,362,476	370,526,330	4,955,347	79,227,255	234,319,713	129,779,597	178,443,007
	1954	481,786,451	365,858,879	5,016,564	69,622,665	209,958,910	116,684,350	192,795,977
Virginian	1955	44,205,611	24,293,571	2,213,584	10,588,133	25,375,562	12,500,119	73,253,000
	1954	36,974,060	22,844,227	2,234,947	6,321,362	22,074,469	10,883,651	75,581,000
Western of Alabama	1955	3,643,709	3,213,384	82,410	235,348	2,076,943	336,974	1,928,680
	1954	4,319,481	3,411,463	84,382	535,068	2,172,692	339,361	2,096,416
Western Pacific	1955	48,118,749	37,174,026	1,317,765	4,313,953	20,579,047	7,851,988	56,092,814
	1954	59,244,506	39,981,658	1,006,148	7,733,446	30,218,175	16,011,054	32,476,229

† To be supplemented as annual reports of other roads are received; previous list appeared on page 23 of April 30 Railway Age.
* On December 31
d Deficit
r Revised

(Continued from page 13)
tion of rail passenger services, suggesting that the costs of the service should be considered as a part of the whole industry. He said consciousness of railroads in the public mind can be achieved only through keeping "people riding on our trains, even if it does cost a little money to make them happy."

C&NW Drops Departmental Set-Up

More authority and responsibility at local levels is emphasized under the Chicago & North Western's new divisional organization which replaced a centralized system June 1.

The North Western was the last major railroad to adhere to the departmental system, since the New York Central's "decentralization" (Railway Age, Jan. 23, p. 37).

Broader control has been granted to division superintendents, according to C&NW President C. J. Fitzpatrick, who said they will have "the authority, responsbility and the organization for operation and maintenance of the railroad on their respective divisions. Through decentralization we are giving each division superintendent a freer hand to operate his part of the railroad as efficiently as possible."

Under the new set-up, master mechanics, division engineers, district car supervisors and traveling engineers will be under the jurisdiction of their division superintendents. Operating, engineering, mechanical and car departments at Chicago will be concerned primarily with establishing standards by which each division superintendent will be guided.

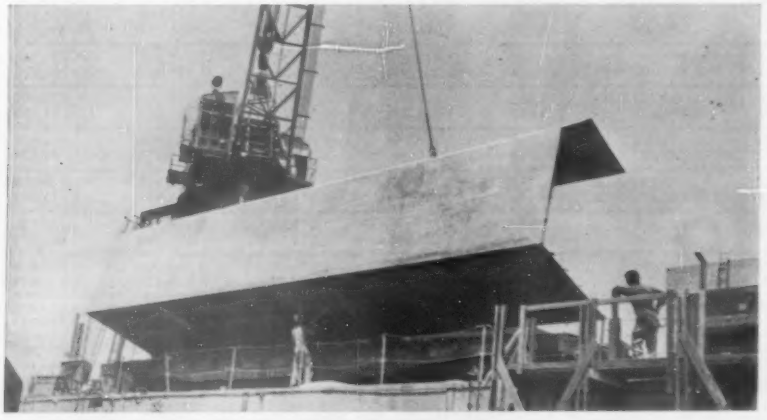
Huge Transport Expansion Prophesied

Expenditure of billions of dollars for modernization of the railroad industry's plant is forecast for the years ahead by Erie President Paul W. Johnston.

Buoyed up by unparalleled "progressive thinking," the industry will, Mr. Johnston predicted, make great strides in equipment innovations, intensified research, improved personnel practices, extended use of automation and inter-railroad cooperation as in joint use of facilities. All this would be coupled, he said at the recent Great Lakes Regional Institute conducted at Cleveland by the Transportation Association of America, with elimination of unprofitable services and equalization of regulation.

Mr. Johnston also looked ahead to continued resistance to government encroachment tending toward socialization, further need for a strong common carrier system, and "increasing integration" of transport modes, of which piggyback is a forerunner.

"A tremendous increase in the demand for transportation of people and goods" in the next 20 years will, Mr. Johnston declared, make it imperative that transportation problems be resolved in the public interest and in such a way "that our dynamic economy will not be throttled."



Barges to Help Build SP's Salt Lake Fill

Here's first section of one of the fabricated steel barges being built by Kaiser Steel at Napa Cal., for the Southern Pacific. Six of the barges will be used to haul rock and gravel for road's new 13-mile fill across Great Salt Lake. It will take 32 of these sections to make one 250-ft barge, with capacity of 2,000 cubic yards of fill. Six diesel tow-boats are also being constructed to pull the barges. The $49 million fill project will replace SP's wooden trestle over lake by 1960.

Supply Trade

J. N. Todd, formerly superintendent scales and work equipment, of the Southern, has joined Cox & Stevens Electronic Scales Division, **Revere Corporation,** as an engineering consultant on scales and weighing systems.

Fred P. Biggs and **George E. Anne,** chairman and vice-president, respectively, of Brake Shoe & Castings Division, **American Brake Shoe Company,** have retired.

Hyster Company will construct a new plant on a 42-acre site in Danville, Ill. It will comprise several factory units and be in addition to the present Danville plant on Myers street.

Effective June 1, the Chicago executive offices of **Pullman-Standard Car Manufacturing Company,** now at 79 East Adams street, are at 221 North LaSalle street, Chicago 1.

Ray L. Nelson, formerly chief mechanical inspector for the **AAR,** has been appointed chief field representative for **Miller Lubricator Company,** with headquarters at Chicago.

OBITUARY

Frank P. Borden, 51, traffic director of Douglas Fir Plywood Association, died June 4 at Tacoma, Wash.

George L. Cotter, director of engineering, Air Brake Division, Westinghouse Air Brake Company, died at his home in Blackridge, Pittsburgh, Pa., June 8.

Robert J. Bayer, 59, editor of Traffic World and chairman of the board of directors of the American Society of Traffic and Transportation, died at his home in La Grange, Ill., June 5.

are man-hours slipping through your fingers?

P-A-X Business Telephone Systems cut this loss

RAILROAD USERS OF P-A-X

Atchison, Topeka & Santa Fe Railway, since 1930, 168 lines
Atlantic Coast Line Railroad Co., since 1926, 900 lines
Chicago, Northwestern Railway Co., since 1915, 94 lines
Chicago, Rock Island & Pacific RR., since 1929, 280 lines
Cleveland, Cincinnati, Chicago & St. Louis Ry., since 1930, 30 lines
Delaware, Lackawanna & Western RR., since 1930, 37 lines
Illinois Central Railroad Co., since 1923, 1550 lines
Kansas City Southern Railway, since 1923, 50 lines
Louisville & Nashville RR., since 1914, 975 lines
Missouri Pacific Railroad, since 1923, 262 lines
New York Central System, since 1913, 345 lines
Norfolk & Western Railway Co., since 1927, 140 lines
Pennsylvania Railroad, since 1938, 50 lines
Southern Pacific Lines, since 1934, 45 lines
Union Pacific Railroad Company, since 1922, 100 lines

When your people have to walk about to exchange information, they're wasting time—through no fault of their own! What you need is a P-A-X Business Telephone System, providing "touch-of-a-dial" communication to the office next door—or 'way in the next division!

Through the P-A-X System, each person can reach anyone else—in seconds. Overall supervision is made easier, and all departments can coordinate their activities for top efficiency. That's why many railroads depend on P-A-X for lightning-fast communication throughout the length and breadth of their widespread operations.

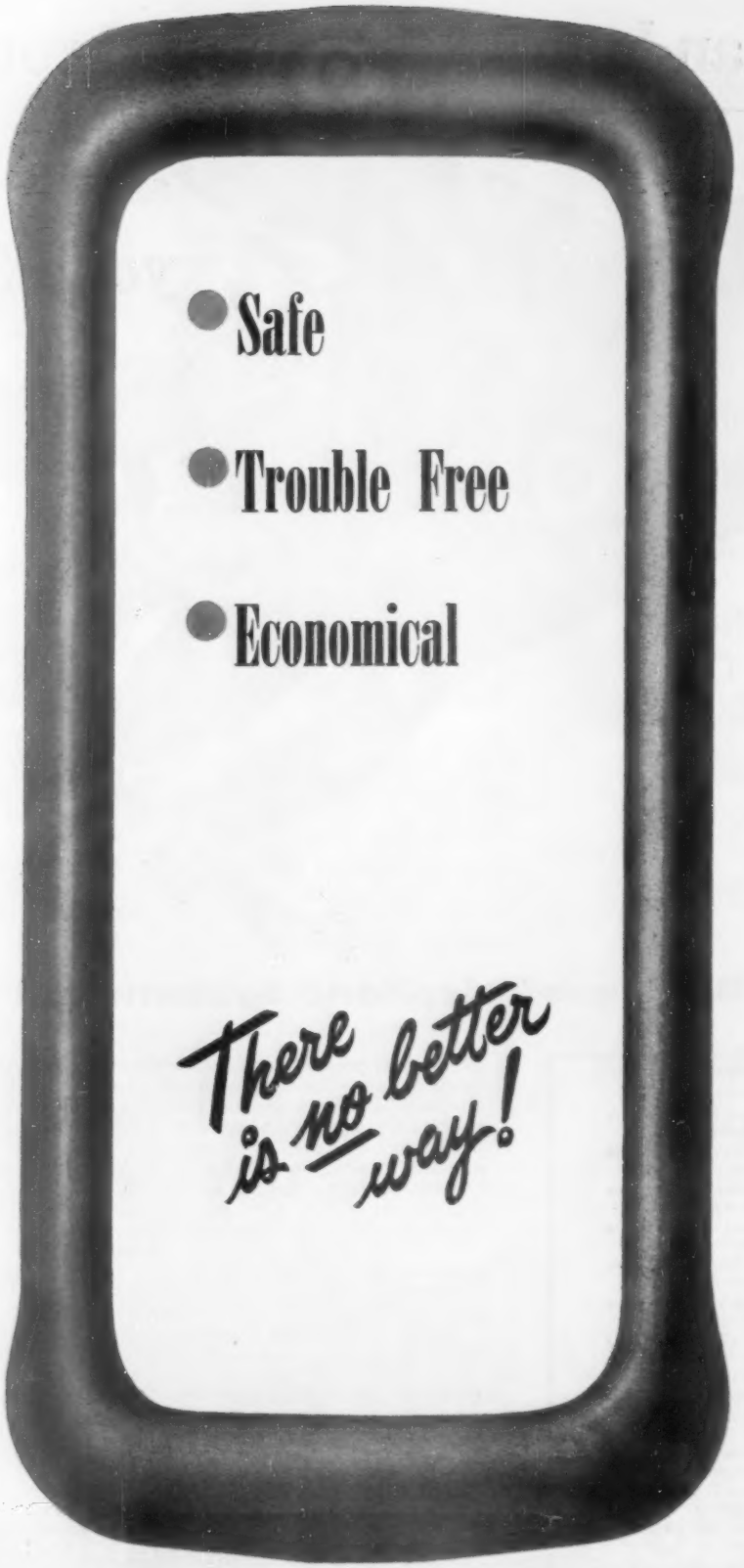
Rent-free P-A-X is railroad-owned and controlled; your own communications men install and move P-A-X telephones as you wish. It is rent-free, entirely separate from the public telephone system, and uses railroad-owned or leased lines.

Discover how other railroads are saving time and money, increasing efficiency, with a P-A-X Business Telephone System. For an actual "on-the-job" case study, *write:* Automatic Electric Sales Corporation (HAymarket 1-4300), 1033 West Van Buren Street, Chicago 7, Illinois. *In Canada:* Automatic Electric Sales (Canada) Ltd., Toronto. *Offices in principal cities.*

AUTOMATIC ELECTRIC

Originators of the dial telephone · Pioneers in automatic control

GENERAL TELEPHONE SYSTEM



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Exclusive UNI-PAK Features

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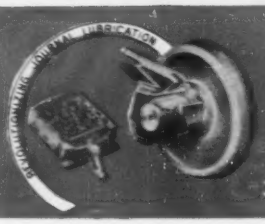
2. Uni-Pak's foam neoprene pad absorbs and holds more oil than other lubricators, giving maximum filtered oil to the journal.
3. Rugged cotton body increases capillary attraction. Buffers keep pad properly positioned and take up wear at fillet and collar.

145,000 UNI-PAK LUBRICATORS

now giving remarkable service on 30 roads

Write for full details about this revolutionary lubricator today



UNI-PAK CORPORATION

BOX 8302 SWISSVALE, PA.

366 MADISON AVE., New York 17, N. Y. • 120 SO. LA SALLE ST. Chicago, Ill.

(Continued from page 40)
cushioned with foam rubber and covered with mohair slip-cover type upholstery. All reclining seats rotate except those adjacent to the partitions on the lower level. The upper level smoking lounge has ten loose lounge chairs supplied by Coach & Car Equipment Co., and two double built-in bulkhead seats. The chairs are covered with artificial leather and the built-in seats have the same covering used on the coach seats.

Functional Colors

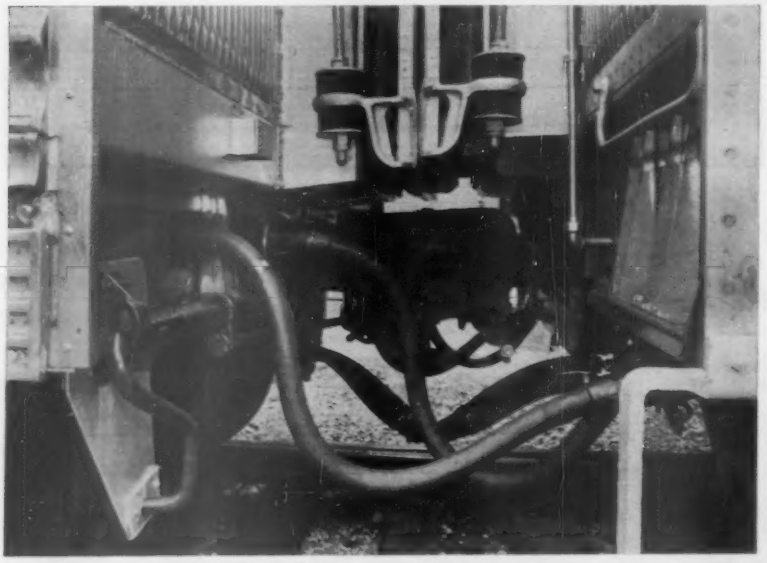
The ⅛-in. rubber tile floor covering is laid over ½-in. thick water-resisting plywood. The colors and patterns were chosen to make the ramps at the end bulkheads and steps to the depressed floor area stand out from the level floors. Stainless handrails are provided at the ramps. On each side of the steps between the two coach levels are low partitions capped with illuminated plastic hand rails. Partitions separating the two floor levels are built of steel tubing covered with ½-in. plastic covered plywood.

The entire inner lining of the car is integrally colored plastic. Ceilings in the depressed coach section and washrooms are preformed ⅛-in. Masonite bonded to the plastic. For the upper coach section and lounge ceilings the plastic is bonded to 0.081-in. aluminum, and this same material is used for the lower level frieze. Center ceiling (bottom of air duct) is plastic-faced plywood. The remainder of the car is lined with unreinforced ⅛-in. plastic. Blind rivets and self-tapping screws are used for the lining application.

The Owens-Corning Fiberglass used for wall, roof and floor insulation is in 2 and 3-in. thicknesses. Mortell Insulmat alphaltic sound-deadening coat was sprayed over the floor structure, end walls and lower side walls.

Interconnected water tanks with a total capacity of 150 gal are made from 8-in. stainless tubing. The two "H" shaped tanks are mounted parallel to the car centerline in an insulated stainless casing under the depressed floor section and have electric anti-freeze protection. A Westinghouse water raising system delivers water to the Crane lavatory fixtures in both washrooms and to the Westinghouse electric water cooler. The double-glazed breather windows have an inner pane of Pittsburgh laminated clear glass and an outer pane of Pittsburgh Solex plate glass. There are roller curtains at the windows in the coach and lounge areas with mullions at the double-width windows so the curtain at each seat is individually controlled.

The vestibule of the tubular coach is conventional except for the round-topped doors necessitated by the lower roof. Ready-to-run, these coaches weight 93,000 lb, and the weight of the power car is 112,000 lb.



TWO TRAINLINE CONNECTORS at each end of each car couple the four parallel 3-phase lines carrying a-c current. At train ends connector cables are plugged into car's own adjacent empty receptacle.

Railway Officers

ASSOCIATION OF AMERICAN RAILROADS.—Thomas L. Preston, general solicitor at Washington, D.C., elected vice-president and general counsel in charge of law depart-

Thomas L. Preston

ment, succeeding the late **J. Carter Fort. Gerald D. Finney** and **Harry J. Breithaupt, Jr.,** assistant general solicitors, and **Philip F. Welsh,** attorney, appointed general attorneys.

BOSTON & MAINE.—Thomas K. Dyer, assistant to chief engineer, Boston, appointed engineer maintenance of way there, succeeding the late **Harold S. Ashley.**

CANADIAN PACIFIC. — J. F. Ingram appointed acting district supervisor, safety, loss and damage prevention, Saskatchewan district, at Moose Jaw, Sask.

W. J. Presley, assistant superintendent at Brownville Junction, Me., transferred to Montreal terminals at St. Luc Yard, succeeding **W. R. Nichol,** transferred. **C. C. Whiteman,** assistant superintendent at Wynyard, Sask., named third assistant superintendent, Winnipeg Terminals division. **E. N. A. Sewell,** district safety supervisor, succeeds Mr. Whiteman as assistant superintendent at Wynyard.

DELAWARE & HUDSON.—C. H. Tobin, engineer and superintendent of telegraph at Albany, appointed superintendent signals and communications, and his former position abolished.

ELGIN, JOLIET & EASTERN.—Paul H. Verd, general manager, has assumed the duties of **P. T. Moran** as head of the Operating Department. Mr. Moran continues to serve as vice-president.

F. S. Sitka appointed freight claim agent at Chicago, succeeding **T. M. Fleming,** retired.

(Continued on page 74)

. . . guards perishables under ALL conditions!

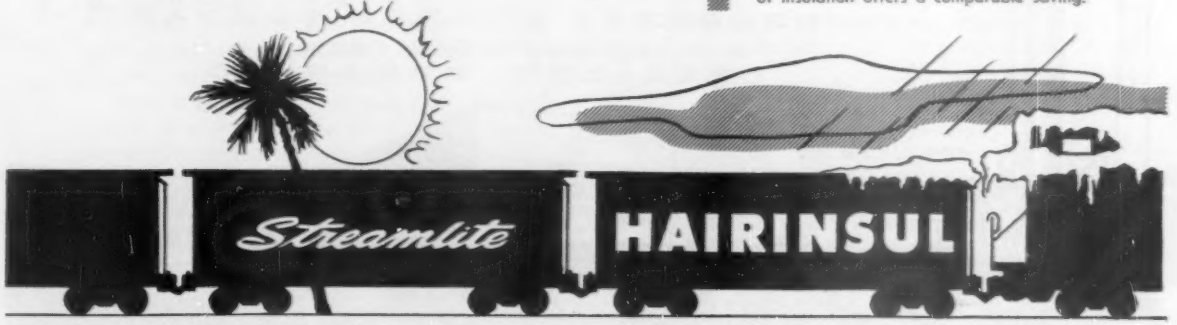
Major refrigerator car builders have been using all-hair insulation for nearly half a century — and today they specify Streamlite HAIRINSUL because of its 40% less weight, higher efficiency and greater economy.

At any location, at any temperature Streamlite HAIRINSUL provides maximum protection to valuable shipments of perishables.

Yes, Streamlite HAIRINSUL assures you all the major advantages listed at the right — and more besides. Write for complete data.

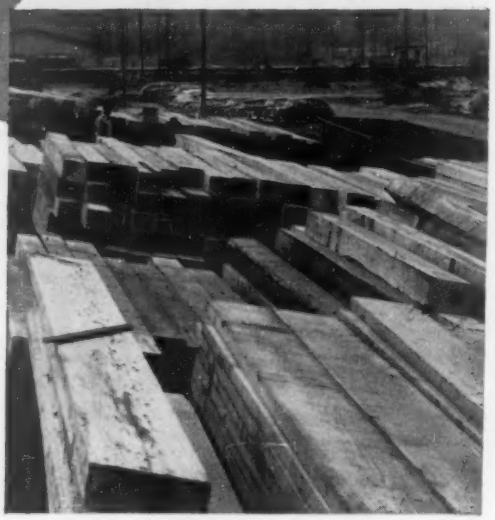
AMERICAN HAIR & FELT COMPANY
Merchandise Mart • Chicago, Illinois

- **LOW CONDUCTIVITY** — Thoroughly washed and sterilized, all-hair heat barrier. Rated conductivity — .25 btu per square foot, per hour, per degree F., per inch thick.
- **LIGHT WEIGHT** — Advanced processing methods reduce weight of STREAMLITE HAIRINSUL by 40%.
- **PERMANENT** — Does not disintegrate when wet, resists absorption. Will not shake down, is fire resistant and odorless.
- **EASY TO INSTALL** — Blankets may be applied to car wall in one piece, from sill to plate and from one side door to the other. Self-supporting in wall section between fasteners.
- **COMPLETE RANGE** — STREAMLITE HAIRINSUL is available ½" to 4" thick, up to 127" wide. Stitched on 5" or 10" centers between two layers of reinforced asphalt laminated paper. Other weights and facings are available.
- **HIGH SALVAGE VALUE** — The all-hair content does not deteriorate with age; therefore has high salvage value. No other type of insulation offers a comparable saving.



SETS THE STANDARD BY WHICH ALL OTHER REFRIGERATOR CAR INSULATIONS ARE JUDGED.

Under CROSSETT LUMBER Standards YOU'RE SURE



*CREOSOTED & WOLMANIZED**
Treated Stock

Sure of prompt deliveries of what you need, *when* you need it, in Railway and Car Material. Ample Big Mill capacity for schedules of any size covering Stringers, Caps & Sills in Dense Shortleaf Pine; Switch Ties in Oak and Gum; Oak Freight Car Stock and Timbers; Herculift Pallets built for rugged service.

CROSSETT LUMBER COMPANY
A Division of The Crossett Company
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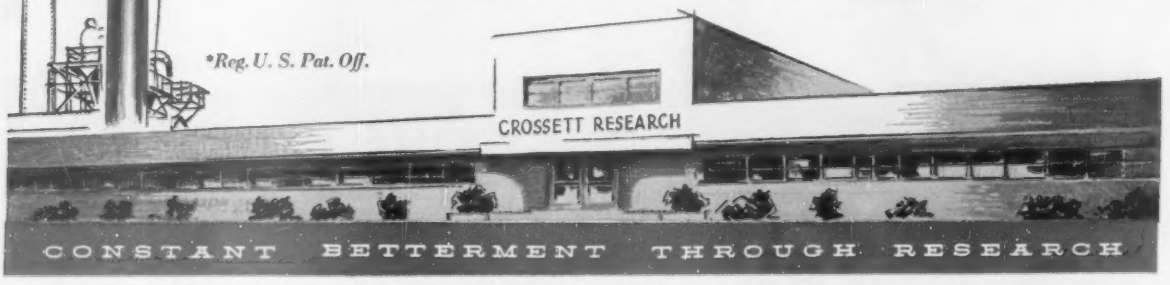
**Reg. U. S. Pat. Off.*



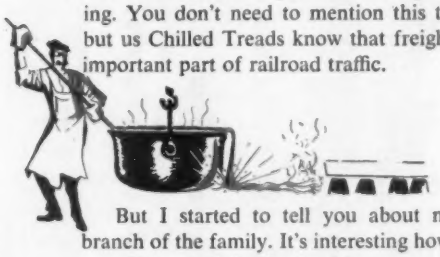
CONSTANT BETTERMENT THROUGH RESEARCH

We wheels have come a long way!

My name is TOUGH GUY. I come from a pretty important family—the Wheels. All us Wheels go back to ancient times. We are recognized as one of mankind's oldest inventions, and among the most important to civilization.

Of course we Wheels have come a long way since those days, though I don't know whether civilization has or not. Today there's mighty few machines that don't depend on wheels in one way or another.

Transportation is my specialty. My branch of the family does the heavy work. We are the Chilled Tread Car Wheels, and we specialize in keeping freight rolling. You don't need to mention this to passengers, but us Chilled Treads know that freight is the most important part of railroad traffic.



But I started to tell you about my particular branch of the family. It's interesting how chilled iron was discovered. In England it was, and some bloke lets molten iron spill over the ladle and down on the floor. Well, you know foundries—there's always a hunk of iron lying around. So this hot iron spills and part of it runs against the cold iron.

After it had cooled somebody noticed that the spilled iron that touched the cold iron was white, and extremely hard. That's how chilled iron was born.

Not long after that a fellow by the name of Richard Trevithick got the idea of putting a steam engine on wheels and hauling cars along tracks, or rail-roads. The iron horse had to have iron wheels, and by 1818 an ingenious foundryman had applied the chilled iron idea to railroad car wheels.

From the first we Chilled Tread Wheels did all right, even the rather crude models. You see, we are made of high-grade controlled iron, and we are poured into a flask made up of molding sand with a metal ring around it. When the molten iron strikes this cold ring it creates hard white iron around my entire tread. That chill goes in about an inch, and the rest of the iron cools normally, and so is ductile, resilient, tough, but relatively much softer.

So you see I'm hard treaded to resist wear from the rails and the brake shoes. I'm tough and strong enough to take shock in my center portion, or plate. And at heart I'm a softie—my hub is easy to machine and fits real snug to the axle.

I guess that's why railroad men like me.

* * *

In addition to the advantages inherent in chilled car wheels, as explained by TOUGH GUY, other advantages, such as low cost, improved safety records, and quick delivery from the nearest AMCCW plant, assure a permanent place for chilled car wheels in modern railroad equipment.

Association of Manufacturers of Chilled Car Wheels

445 North Sacramento Boulevard, Chicago 12, Illinois

Albany Car Wheel Co.
Southern Wheel (American Brake Shoe Co.)
Griffin Wheel Co.
ACF Industries
Marshall Car Wheel & Foundry Co.
Pullman-Standard Car Mfg. Co.
Canada Iron Foundries, Ltd.
Canadian Car & Foundry Co., Ltd.

Freight Operating Statistics of Large Railways—Selected Items

Region, Road and Year		Miles of road operated	Train miles	Locomotive Miles: Principal and helper	Locomotive Miles: Light	Car Miles: Loaded (thousands)	Car Miles: Per cent loaded	Ton-miles (thousands): Gross excl. locos. & tenders	Ton-miles (thousands): Net rev. and non-rev.	Road-locos on lines: Serviceable: Unstored	Road-locos on lines: Serviceable: Stored	Road-locos on lines: B.O.	Road-locos on lines: Per cent B.O.
New Eng. Region	Boston & Maine	1956	1,562	273,469	279,950	12,431	10,588	64.6	695,322	269,115	65	..	2	3.0
		1955	1,564	258,273	264,782	9,944	10,085	63.8	657,798	251,505	71	..	5	6.6
	N. Y., N. H. & Htfd	1956	1,746	277,035	277,267	18,646	12,312	68.4	753,371	301,358	83	..	15	15.3
		1955	1,746	297,440	297,515	16,309	12,424	66.6	766,892	301,046	86	..	8	8.5
Great Lakes Region	Delaware & Hudson	1956	792	192,354	198,419	7,996	10,200	68.4	724,228	380,042	38	..	3	7.3
		1955	792	190,394	196,181	10,903	9,417	65.4	655,761	321,631	38	2	3	7.9
	Del., Lack. & Western	1956	962	318,631	336,389	31,580	13,501	70.2	871,898	383,309	60	..	..	..
		1955	962	288,754	301,517	22,211	12,560	66.3	812,407	339,787	62	..	2	3.1
	Erie	1956	2,225	601,898	609,468	20,481	34,973	71.2	2,099,325	857,664	162	..	3	1.8
		1955	2,224	571,552	577,010	14,124	31,307	68.1	1,905,301	749,543	163	..	3	1.8
	Grand Trunk Western	1956	951	317,925	326,517	2,522	10,066	60.8	723,999	299,049	62	..	16	20.5
		1955	952	279,005	282,308	2,205	9,325	59.8	660,514	257,557	59	1	17	22.1
	Lehigh Valley	1956	1,137	241,036	244,982	10,770	11,143	67.7	756,550	354,407	33	..	2	5.7
		1955	1,142	208,187	211,011	5,462	10,394	65.8	693,010	307,682	33	..	1	2.9
	New York Central	1956	10,565	2,682,914	2,721,101	119,824	107,520	61.3	7,688,291	3,407,620	564	3	69	10.8
		1955	10,661	2,602,912	2,650,569	105,730	103,345	61.2	7,248,106	3,127,394	533	79	98	13.8
	New York, Chic. & St. L.	1956	2,154	802,328	827,427	9,436	34,268	66.1	2,391,934	1,074,135	179	1	22	10.9
		1955	2,155	739,244	765,098	6,627	29,581	64.1	2,048,375	898,151	148	18	43	20.2
	Pitts. & Lake Erie	1956	221	76,386	76,454	....	3,403	65.4	296,260	182,086	13	..	..	..
		1955	221	64,484	64,940	112	2,955	67.2	257,672	161,121	15	7	..	..
	Wabash	1956	2,381	520,057	522,229	5,986	24,792	68.0	1,397,062	643,428	100	..	3	2.9
		1955	2,381	554,435	556,218	7,205	24,549	64.8	1,582,662	592,301	104	..	..	..
Central Eastern Region	Baltimore & Ohio	1956	5,910	1,740,465	1,948,411	178,745	66,585	59.9	5,513,859	2,652,728	455	2	76	14.3
		1955	6,077	1,542,511	1,688,540	146,603	61,593	61.6	4,698,309	2,122,139	414	21	87	16.7
	Bessemer & Lake Erie	1956	208	42,755	44,048	82	1,947	65.8	215,121	140,133	13	3	..	..
		1955	208	34,413	34,836	68	1,544	65.6	173,738	114,054	12	4	..	..
	Central RR Co. of New Jersey	1956	612	129,082	130,887	7,129	5,197	68.0	384,109	204,216	73	..	..	..
		1955	613	126,647	127,752	5,342	4,663	65.2	352,217	174,167	68	..	9	11.7
	Chicago & Eastern Ill.	1956	868	133,810	133,810	2,995	5,817	68.6	411,756	201,456	28	..	2	6.7
		1955	868	118,134	118,134	2,761	5,103	64.8	362,067	170,483	25	..	2	7.4
	Elgin, Joliet & Eastern	1956	236	101,746	102,824	....	3,243	62.4	266,608	144,229	37	..	3	7.5
		1955	236	83,879	84,480	....	2,733	62.5	220,509	119,708	33	5	3	7.3
	Pennsylvania System	1956	9,892	3,108,474	3,328,857	246,872	133,783	65.7	9,595,663	4,526,627	761	34	391	33.0
		1955	9,892	2,841,293	3,020,269	202,417	121,637	63.6	8,542,836	3,849,947	735	163	441	32.9
	Reading	1956	1,305	390,680	393,672	13,082	15,466	62.8	1,280,390	694,364	165	..	26	13.6
		1955	1,304	340,632	343,400	11,823	12,883	59.5	1,057,690	540,564	154	9	24	12.8
	Western Maryland	1956	846	188,344	197,662	13,039	7,914	62.1	679,231	585,386	36	..	..	..
		1955	847	163,926	170,333	9,589	6,422	60.1	542,140	295,934	35	..	..	..
Pocahontas Region	Chesapeake & Ohio	1956	5,067	1,657,336	1,685,013	51,336	67,508	56.8	5,900,488	3,254,214	488	11	114	18.6
		1955	5,046	1,436,863	1,458,681	43,282	59,176	57.8	5,001,711	2,737,122	368	29	189	32.3
	Norfolk & Western	1956	2,103	799,031	850,662	69,872	39,424	60.8	3,574,525	1,988,650	226	6	20	7.9
		1955	2,110	662,556	707,555	55,627	32,301	59.7	2,908,742	1,575,894	223	27	25	9.1
Southern Region	Atlantic Coast Line	1956	5,278	929,049	929,065	10,345	29,937	58.8	2,230,056	992,346	222	..	5	2.2
		1955	5,334	889,589	889,589	10,316	29,412	58.2	2,176,497	975,404	237	..	5	2.1
	Central of Georgia	1956	1,731	210,026	210,053	1,746	8,613	68.3	606,397	296,173	75	..	2	2.6
		1955	1,731	197,947	197,973	2,375	8,488	69.6	572,350	276,840	71	..	3	4.1
	Gulf, Mobile & Ohio	1956	2,717	280,112	280,112	89	16,259	70.4	1,089,882	527,742	86	..	5	5.5
		1955	2,717	287,525	287,525	215	17,383	71.1	1,143,039	548,418	85	..	4	4.5
	Illinois Central	1956	6,531	1,233,693	1,237,535	36,614	52,996	63.6	3,842,091	1,803,172	448	9	107	19.0
		1955	6,539	1,289,858	1,291,043	39,595	52,537	64.4	3,707,932	1,701,525	459	71	193	26.7
	Louisville & Nashville	1956	4,714	892,989	898,906	18,287	33,861	64.1	2,520,253	1,287,039	191	13	22	9.7
		1955	4,715	402,033	404,095	7,355	15,811	61.8	1,193,570	595,269	174	47	7	3.1
	Nash., Chatt. & St. Louis	1956	1,043	192,678	197,525	4,940	6,460	69.5	438,234	211,246	51	..	2	3.8
		1955	1,043	83,730	85,944	1,921	2,837	70.4	182,649	84,482	49	..	4	7.5
	Seaboard Air Line	1956	4,051	716,915	716,915	3,097	28,532	63.7	2,071,776	949,128	151	..	3	1.9
		1955	4,053	670,390	670,390	1,935	27,910	62.5	2,010,731	882,976	141	..	7	4.7
	Southern	1956	6,259	947,212	947,282	12,501	46,199	67.6	3,037,461	1,408,716	283	..	1	.4
		1955	6,264	991,270	991,340	14,014	47,324	68.2	3,048,875	1,393,562	286	..	4	1.4
Northwestern Region	Chicago & North Western	1956	7,810	724,421	726,179	8,537	31,295	65.9	2,124,818	938,850	143	11	25	14.0
		1955	7,848	718,502	720,053	9,552	30,678	66.5	2,023,644	935,679	140	25	33	16.7
	Chicago Great Western	1956	1,457	139,633	139,633	193	8,242	71.2	540,901	251,695	31	..	2	6.1
		1955	1,457	140,122	140,122	177	8,025	70.6	522,824	238,748	29	..	4	12.1
	Chic., Milw., St. P. & Pac.	1956	10,633	990,417	1,005,575	21,001	43,055	65.6	2,931,265	1,314,777	278	7	16	5.3
		1955	10,633	1,002,748	1,019,680	20,869	42,240	64.3	2,875,285	1,260,007	258	53	23	6.9
	Chic., St. P., Minn. & Omaha	1956	1,606	184,111	186,084	5,191	6,056	64.2	432,389	191,027	55	..	20	26.7
		1955	1,606	172,387	173,867	5,595	5,695	63.7	397,454	169,254	58	..	16	21.6
	Duluth, Missabe & Iron Range	1956	569	33,602	34,047	950	655	54.1	52,658	25,013	38	24	5	7.5
		1955	569	30,306	30,322	427	485	56.4	36,161	17,253	45	12	7	10.9
	Great Northern	1956	8,272	1,154,008	1,162,368	43,758	42,684	69.6	2,936,214	1,367,689	262	67	37	10.1
		1955	8,270	1,146,487	1,152,689	31,932	40,872	65.7	2,849,316	1,266,664	218	169	43	10.0
	Minneap., St. P. & S. Ste. M.	1956	4,171	419,993	422,816	2,903	14,855	68.0	982,297	448,815	82	10	6	6.1
		1955	4,171	386,549	388,998	2,425	12,738	69.1	822,076	371,582	83	11	15	13.8
	Northern Pacific	1956	6,569	876,541	894,711	25,627	37,400	66.7	2,528,505	1,126,576	256	60	44	12.2
		1955	6,570	917,834	943,500	32,426	31,256	62.1	2,429,738	1,040,640	234	25	65	17.4
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1956	13,124	2,507,097	2,637,448	74,216	118,246	65.7	7,835,483	3,002,601	527	58	60	9.3
		1955	13,098	2,406,292	2,508,889	59,256	114,434	64.5	7,679,315	2,919,749	514	86	29	4.6
	Chic., Burl. & Quincy	1956	8,771	1,089,130	1,084,945	26,379	50,201	69.8	3,267,249	1,459,943	207	37	47	16.2
		1955	8,808	1,152,296	1,146,538	43,525	48,184	68.5	3,074,060	1,343,293	236	45	22	7.3
	Chic., Rock I. & Pac.	1956	7,580	946,162	941,729	1,306	38,174	62.8	2,717,593	1,126,941	170	..	5	2.9
		1955	7,904	913,356	911,902	1,681	37,443	63.7	2,597,019	1,070,619	169	..	6	3.4
	Denver & R. G. Wn.	1956	2,155	293,046	313,327	36,330	14,892	70.8	1,008,708	485,385	68	11	22	21.8
		1955	2,165	295,612	316,671	31,505	14,703	69.1	1,023,173	490,354	56	43	27	21.4
	Southern Pacific	1956	8,055	2,175,898	2,273,838	156,596	102,567	66.4	6,873,143	2,914,488	634	102	66	8.2
		1955	8,072	2,225,924	2,341,478	211,737	101,380	65.0	6,862,837	2,859,304	606	75	113	14.2
	Union Pacific	1956	9,805	2,264,983	2,316,100	93,075	109,001	68.3	7,162,718	3,105,625	400	110	125	19.7
		1955	9,813	2,312,535	2,359,024	104,363	104,527	66.4	6,912,186	2,930,008	408	220	119	15.9
	Western Pacific	1956	1,190	243,649	259,881	14,361	10,716	67.4	718,084	316,082	46	..	..	..
		1955	1,190	234,229	244,711	19,438	10,653	68.8	700,103	316,217	43	..	..	..
Southwestern Region	International-Gt. Northern*	1956	886	166,299	166,307	409	9,721	68.3	694,898	320,492	24	..	2	7.7
		1955	886	161,937	161,991	45	9,351	68.7	653,255	306,921	25	..	3	10.7
	Kansas City Southern	1956	753	99,938	99,938	234	4,550	65.4	346,523	162,568	17	..	..	..
		1955	753	98,940	98,940	720	4,472	65.6	331,095	161,092	12	..	..	..
	Mo.-Kans.-Texas Lines	1956	3,230	353,151	353,151	3,654	15,598	65.6	1,020,391	444,038	86	..	2	2.3
		1955	3,230	344,493	344,493	3,766	14,411	64.5	939,286	396,109	85	..	1	1.2
	Missouri Pacific*	1956	9,709	1,352,216	1,352,216	11,465	59,668	63.6	4,212,224	1,852,382	352	5	26	6.8
		1955	9,705	1,302,979	1,302,979	11,242	56,342	65.2	3,924,887	1,737,223	315	43	90	20.1
	Texas & Pacific	1956	1,822	328,847	328,847	5,189	16,074	62.6	1,175,237	459,512	62	..	..	..
		1955	1,822	338,630	338,630	3,392	15,426	62.3	1,106,648	419,667	58	..	1	1.7
	St. Louis-San Francisco	1956	4,573	628,825	628,825	5,989	25,824	68.1	1,714,402	785,963	98	..	6	5.8
		1955	4,564	616,390	617,831	5,828	25,863	68.2	1,689,319	761,464	115	..	6	5.0
	St. Louis Southw. Lines	1956	1,554	358,209	358,211	1,713	18,029	70.8	1,144,522	511,617	55	..	3	5.2
		1955	1,554	315,909	315,937	1,546	16,290	71.4	959,428	428,878	56	1	16	21.9
	Texas & New Orleans	1956	4,302	737,080	737,080	3,009	30,816	63.5	2,166,226	931,055	135	..	3	2.2
		1955	4,302	703,799	703,799	7,483	29,694	64.2	2,058,958	879,442	136	..	3	2.2

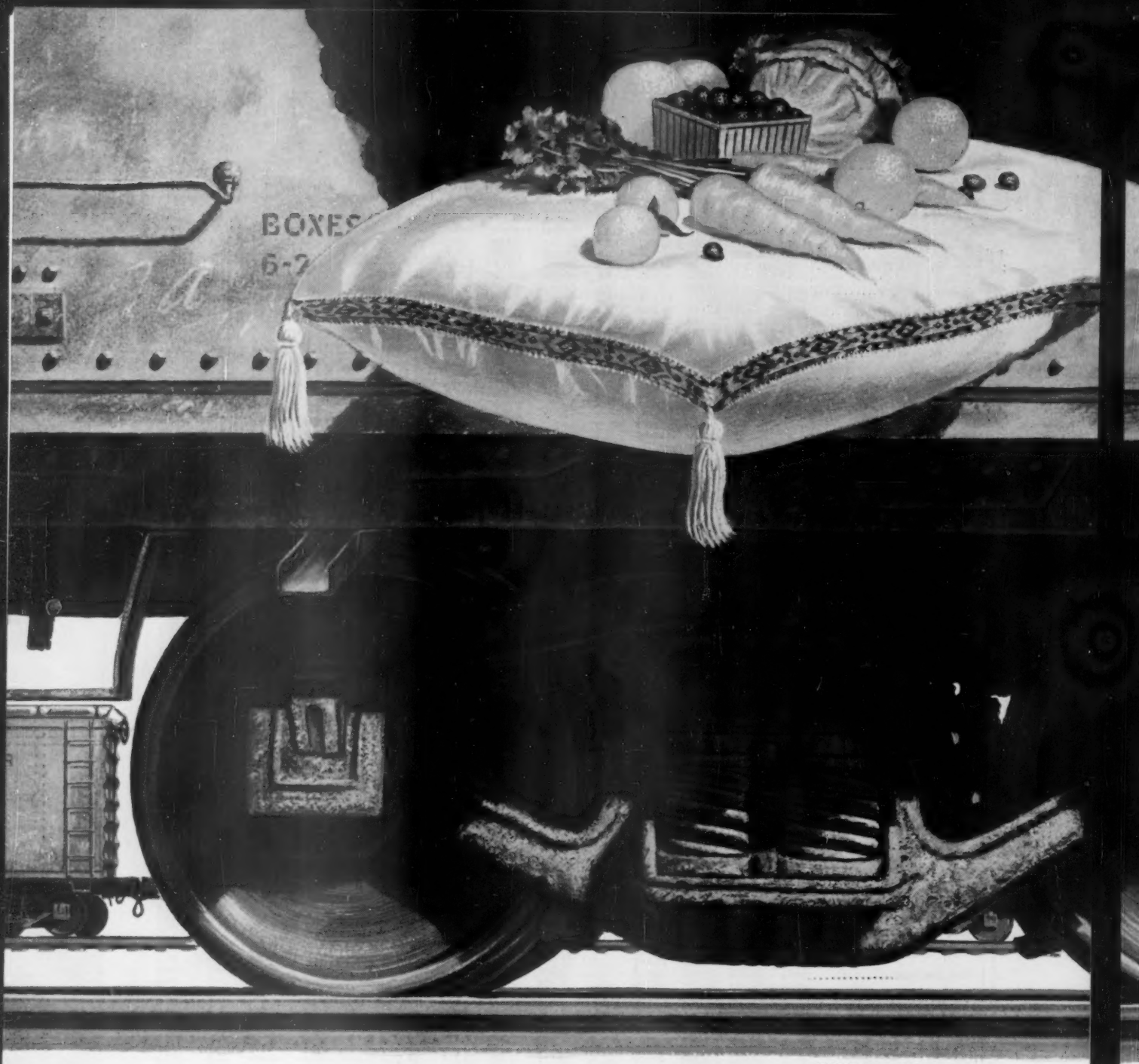
For the Month of March 1956 Compared with March 1955

	Region, Road and Year		Freight cars on line: Home	Foreign	Total	Per Cent B.O.	G.t.m. per train-hr. excl. locos and tenders	G.t.m. per train-mi. excl. locos and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd car-mile	Net ton-mi. per car-day	Car-miles per car-day	Net daily ton-mi. per road-mi.	Train-miles per train-hour	Miles per loco. per day
New Eng. Region	Boston & Maine	1956	1,597	10,430	12,027	3.7	39,083	2,550	987	25.4	754	45.9	5,558	15.4	156.5
		1955	2,668	7,588	10,256	5.1	39,908	2,555	977	24.9	775	48.7	5,187	15.7	128.6
	N. Y., N. H. & Htfd	1956	1,793	20,530	22,323	1.9	42,986	2,719	1,089	24.5	461	27.5	5,568	15.8	118.7
		1955	2,617	14,582	17,199	1.8	43,988	2,578	1,012	24.2	549	34.0	5,562	17.1	134.8
Great Lakes Region	Delaware & Hudson	1956	1,623	6,495	8,118	4.0	66,261	3,781	1,984	37.3	1,466	57.5	15,479	17.6	172.6
		1955	5,927	4,651	10,578	6.0	65,413	3,464	1,699	34.2	971	43.5	13,100	19.0	168.6
	Del., Lack. & Western	1956	3,460	13,049	16,509	2.3	49,063	2,777	1,221	28.4	774	38.9	12,853	17.9	214.4
		1955	6,372	9,450	15,822	2.9	50,855	2,860	1,196	27.1	658	36.7	11,394	18.1	180.8
	Erie	1956	6,703	20,964	27,667	2.8	66,915	3,516	1,436	24.5	1,005	57.6	12,434	19.2	137.5
		1955	8,931	15,307	24,238	5.2	64,866	3,362	1,323	23.9	963	59.1	10,872	19.5	129.8
	Grand Trunk Western	1956	3,628	9,860	13,488	6.7	47,197	2,306	952	29.7	694	38.4	10,144	20.7	148.1
		1955	3,589	9,238	12,827	7.5	51,163	2,384	929	27.6	656	39.7	8,727	21.6	127.3
	Lehigh Valley	1956	7,705	8,312	16,017	4.1	66,382	3,196	1,497	31.8	712	33.1	10,055	21.1	253.9
		1955	9,807	7,070	16,877	3.9	69,593	3,344	1,485	29.6	590	30.3	8,691	20.9	219.1
	New York Central	1956	48,119	94,849	142,968	3.3	50,118	2,920	1,294	31.7	750	38.6	10,404	17.5	151.4
		1955	67,921	81,213	149,134	6.8	50,122	2,815	1,215	30.3	664	35.8	9,463	18.0	135.8
	New York, Chic. & St. L.	1956	6,727	19,051	25,778	5.7	52,646	3,044	1,367	31.3	1,333	64.3	16,086	17.7	149.1
		1955	9,029	15,866	24,895	8.0	50,167	2,826	1,239	30.4	1,221	62.7	13,444	18.1	131.1
	Pitts. & Lake Erie	1956	2,947	8,919	11,866	5.4	59,240	3,893	2,393	53.5	478	13.7	26,578	15.3	191.5
		1955	7,455	6,103	13,558	7.6	59,924	4,021	2,514	54.5	362	9.9	23,518	15.0	116.1
	Wabash	1956	8,691	10,436	19,127	4.4	67,406	3,084	1,242	26.0	1,062	61.3	8,717	21.9	175.2
		1955	8,303	10,601	18,904	7.6	62,999	2,067	1,073	24.1	1,017	65.0	8,025	22.1	185.9
Central Eastern Region	Baltimore & Ohio	1956	44,569	52,631	97,200	4.4	48,848	3,224	1,551	39.8	896	37.5	14,479	15.4	136.3
		1955	55,460	43,433	98,893	15.5	48,284	3,087	1,454	35.9	753	33.1	11,743	15.9	114.1
	Bessemer & Lake Erie	1956	4,841	1,323	6,164	13.0	80,120	5,208	3,392	72.0	723	15.3	21,733	15.9	99.6
		1955	5,931	798	6,729	20.3	73,649	5,207	3,418	73.9	498	10.3	17,688	14.6	86.6
	Central RR Co. of New Jersey	1956	2,213	11,310	13,523	6.3	42,855	3,112	1,654	39.3	489	18.3	10,764	14.4	90.6
		1955	5,440	9,029	14,469	9.8	40,695	2,879	1,424	37.4	388	15.9	9,165	14.6	83.0
	Chicago & Eastern Ill.	1956	2,430	3,484	5,914	6.8	55,730	3,086	1,510	34.6	1,104	46.5	7,487	18.1	155.2
		1955	3,197	3,872	7,069	6.9	51,408	3,075	1,448	33.4	846	39.1	6,336	16.8	148.9
	Elgin, Joliet & Eastern	1956	6,750	11,445	18,195	4.8	21,300	2,756	1,491	44.5	251	9.0	19,714	8.1	108.1
		1955	7,603	8,527	16,130	8.8	22,371	2,728	1,481	43.8	242	8.8	16,362	8.5	89.0
	Pennsylvania System	1956	98,197	94,119	192,316	6.9	53,806	3,167	1,494	33.8	760	34.2	14,761	17.4	105.2
		1955	17,143	86,538	203,681	14.7	53,381	3,081	1,389	31.7	610	30.3	12,555	17.8	85.1
	Reading	1956	10,455	21,650	32,105	3.7	49,398	3,277	1,777	44.9	683	24.2	17,164	15.1	80.8
		1955	18,295	14,724	33,019	6.2	47,277	3,107	1,588	42.0	528	21.1	13,372	15.2	70.1
	Western Maryland	1956	4,332	5,170	9,502	2.4	48,746	3,664	2,079	48.7	1,202	39.8	14,695	13.5	206.6
		1955	5,833	2,588	8,421	5.8	46,983	3,346	1,826	46.1	1,018	36.7	11,271	14.2	188.3
Pocahontas Region	Chesapeake & Ohio	1956	48,684	33,781	82,465	1.3	67,467	3,589	1,979	48.2	1,294	47.3	20,717	19.0	101.5
		1955	53,401	31,542	84,943	4.3	63,454	3,501	1,916	46.3	1,048	39.2	17,498	18.2	88.1
	Norfolk & Western	1956	32,996	11,280	44,276	1.2	76,166	4,597	2,558	50.4	1,463	47.7	30,504	17.0	127.3
		1955	32,993	7,354	40,347	2.4	75,262	4,530	2,454	48.8	1,198	41.1	24,093	17.1	99.7
Southern Region	Atlantic Coast Line	1956	18,093	18,947	37,040	4.1	45,104	2,411	1,073	33.1	857	44.0	6,065	18.8	144.7
		1955	19,514	18,259	37,773	3.6	45,300	2,452	1,099	33.2	834	43.2	5,899	17.7	133.3
	Central of Georgia	1956	2,362	7,035	9,397	4.0	49,987	2,893	1,413	34.4	1,002	42.7	5,519	17.3	97.8
		1955	3,041	7,415	10,456	4.1	49,490	2,903	1,404	32.6	889	39.1	5,159	17.1	95.3
	Gulf, Mobile & Ohio	1956	4,752	11,099	15,851	4.6	75,201	3,894	1,886	32.5	1,133	49.6	6,266	19.3	107.7
		1955	5,700	11,666	17,366	2.6	77,139	3,984	1,911	31.5	1,103	49.2	6,511	19.4	112.6
	Illinois Central	1956	24,699	28,438	53,137	2.3	52,498	3,156	1,481	34.0	1,099	50.8	8,906	16.9	77.8
		1955	27,673	23,863	51,536	2.3	48,804	2,909	1,335	32.4	1,075	51.5	8,394	17.0	64.9
	Louisville & Nashville	1956	28,572	15,626	44,198	3.2	48,639	2,829	1,445	38.0	939	38.5	8,807	17.2	145.3
		1955	35,448	4,969	40,417	3.9	49,844	2,976	1,484	37.7	443	19.0	4,073	16.8	62.6
	Nash., Chatt. & St. Louis	1956	3,504	3,695	7,199	3.8	44,686	2,276	1,097	32.7	963	42.4	6,533	19.6	123.4
		1955	4,073	2,754	6,827	3.7	42,795	2,183	1,010	29.8	399	19.0	2,613	19.6	56.8
	Seaboard Air Line	1956	11,508	16,926	28,434	2.7	53,755	2,956	1,354	33.3	1,025	48.4	7,558	18.6	177.9
		1955	12,848	14,309	27,157	2.7	54,747	3,049	1,359	31.6	1,035	52.3	7,028	18.3	174.0
	Southern	1956	14,798	26,607	41,405	2.5	54,590	3,219	1,493	30.5	1,096	53.2	7,260	17.0	122.0
		1955	18,772	26,376	45,148	4.8	52,405	3,097	1,416	29.4	1,015	50.6	7,177	17.0	124.3
Northwestern Region	Chicago & North Western	1956	16,081	27,965	44,046	4.6	53,499	2,976	1,315	30.0	673	34.0	3,878	18.2	143.2
		1955	17,862	24,977	42,839	4.6	51,887	2,863	1,324	30.5	684	33.7	3,846	18.4	130.0
	Chicago Great Western	1956	1,182	4,008	5,190	2.8	75,073	3,880	1,806	30.5	1,603	73.7	5,650	19.4	142.6
		1955	1,888	4,204	6,092	3.2	72,786	3,738	1,707	29.8	1,240	59.0	5,359	19.5	143.4
	Chic., Milw., St. P. & Pac.	1956	28,364	32,087	60,451	6.3	57,229	2,968	1,331	30.5	694	34.6	3,989	19.3	118.0
		1955	34,970	28,961	63,931	6.0	54,958	2,880	1,262	29.8	624	32.6	3,823	19.2	104.9
	Chic., St. P., Minn. & Omaha	1956	1,187	8,231	9,418	2.2	34,994	2,394	1,058	31.5	647	31.9	3,837	14.9	89.9
		1955	1,156	7,087	8,243	4.1	33,703	2,320	988	29.7	626	33.0	3,399	14.6	89.2
	Duluth, Missabe & Iron Range	1956	13,728	703	14,431	2.2	22,455	1,680	798	38.2	55	2.7	1,418	14.3	20.6
		1955	14,579	562	15,141	1.1	17,893	1,268	605	35.6	37	1.8	978	15.0	18.4
	Great Northern	1956	21,772	21,610	43,382	2.7	51,028	2,571	1,197	32.0	1,022	45.8	5,334	20.1	108.9
		1955	22,437	19,099	41,536	3.1	49,992	2,506	1,114	31.0	949	46.6	4,941	20.1	94.6
	Minneap., St. P. & S. Ste. M.	1956	5,825	9,296	15,121	5.3	48,100	2,352	1,075	30.2	959	46.7	3,471	20.6	157.1
		1955	7,090	6,456	13,546	7.0	44,866	2,141	968	29.2	991	44.2	2,874	21.1	118.8
	Northern Pacific	1956	18,250	19,446	37,696	6.0	57,018	2,896	1,290	30.1	942	46.9	5,532	19.8	58.9
		1955	19,758	18,198	37,956	4.6	53,932	2,661	1,140	33.3	901	43.6	5,109	20.4	92.2
Central Western Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.)	1956	47,698	35,608	83,306	3.1	73,970	3,132	1,200	25.4	1,165	69.8	7,380	23.7	143.6
		1955	52,451	35,556	88,007	3.8	74,280	3,204	1,218	25.5	1,088	66.1	7,191	23.3	140.1
	Chic., Burl. & Quincy	1956	16,566	23,824	40,390	3.9	64,577	3,003	1,342	29.1	1,186	58.4	5,369	21.5	131.4
		1955	23,052	21,371	44,423	3.3	57,168	2,672	1,168	27.9	979	51.3	4,920	21.4	125.9
	Chic., Rock I. & Pac.	1956	11,476	20,227	31,703	4.5	58,996	2,881	1,195	29.5	1,147	61.9	4,796	20.5	181.7
		1955	13,827	16,534	30,361	4.3	57,482	2,850	1,175	28.6	1,122	61.6	4,369	20.2	177.0
	Denver & R. G. Wn.	1956	7,341	6,142	13,483	3.0	67,762	3,450	1,660	32.6	1,145	49.5	7,266	19.7	113.8
		1955	8,300	6,212	14,512	3.5	67,805	3,469	1,663	33.4	1,137	49.4	7,306	19.6	93.7
	Southern Pacific	1956	30,017	45,228	75,245	1.8	62,729	3,194	1,355	28.4	1,293	68.6	11,672	19.9	108.2
		1955	31,939	42,365	74,304	1.8	60,202	3,112	1,297	28.2	1,291	70.4	11,426	19.5	113.6
	Union Pacific	1956	28,069	32,469	60,538	1.7	79,879	3,181	1,379	28.5	1,638	84.2	10,217	25.3	128.6
		1955	30,486	34,110	64,596	2.6	77,547	3,018	1,279	28.0	1,470	79.0	9,632	25.9	106.7
	Western Pacific	1956	2,254	4,581	6,835	1.3	75,405	2,969	1,307	29.5	1,552	78.0	8,568	25.6	199.3
		1955	2,523	3,844	6,367	2.0	70,789	3,033	1,370	29.7	1,736	85.0	8,572	23.7	203.7
Southwestern Region	International-Gt. Northern*	1956	1,302	6,323	7,625	1.8	88,692	4,220	1,946	33.0	1,375	61.1	11,669	21.2	223.9
		1955	1,231	6,122	7,353	4.1	85,853	4,057	1,906	32.8	1,335	59.2	11,175	21.3	206.6
	Kansas City Southern	1956	1,443	4,031	5,474	3.7	67,919	3,471	1,628	35.7	963	41.2	6,964	19.6	219.8
		1955	1,187	3,793	4,980	4.3	53,854	3,348	1,629	36.0	1,108	46.9	6,901	16.1	273.9
	Mo.-Kans.-Texas Lines	1956	3,812	7,437	11,249	6.2	61,685	2,895	1,260	28.5	1,237	66.3	4,435	21.3	138.4
		1955	4,975	5,887	10,862	9.3	57,127	2,733	1,153	27.5	1,106	62.4	3,956	21.0	136.6
	Missouri Pacific*	1956	20,435	30,830	51,265	4.8	67,433	3,142	1,382	31.0	1,381	69.9	6,155	21.6	123.8
		1955	26,910	25,251	52,161	3.1	66,011	3,029	1,341	30.8	1,074	53.5	5,774	21.9	102.1
	Texas & Pacific	1956	2,568	7,054	9,622	2.3	77,959	3,589	1,403	28.6	1,556	87.0	8,136	21.8	185.1
		1955	3,365	6,300	9,665	2.4	72,926	3,278	1,243	27.2	1,430	84.4	7,430	22.3	194.7
	St. Louis-San Francisco	1956	11,236	11,665	23,081	3.2	56,105	2,735	1,254	30.4	1,057	51.0	5,544	20.6	212.5
		1955	13,641	11,540	25,181	3.2	52,632	2,745	1,237	29.4	980	48.8	5,382	19.2	183.3
	St. Louis Southw. Lines	1956	1,826	5,396	7,222	1.7	67,037	3,206	1,433	28.4	2,332	116.0	10,620	21.0	214.1
		1955	2,076	5,073	7,149	1.4	62,155	3,040	1,359	26.3	1,899	101.0	8,903	20.5	156.6
	Texas & New Orleans	1956	5,332	17,124	22,456	1.4	61,108	2,958	1,271	30.2	1,353	70.5	6,981	20.8	183.0
		1955	6,624	14,875	21,499	2.7	61,894	2,946	1,258	29.6	1,301	68.4	6,594	21.2	177.3

*Effective March 1, 1956 the reorganized Missouri Pacific Railroad returns include the International-Great Northern Railroad & Gulf Coast Lines.

Compiled by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission. Subject to revision.

a RAILWAY AGE Workbook Page



On the A.R.T.

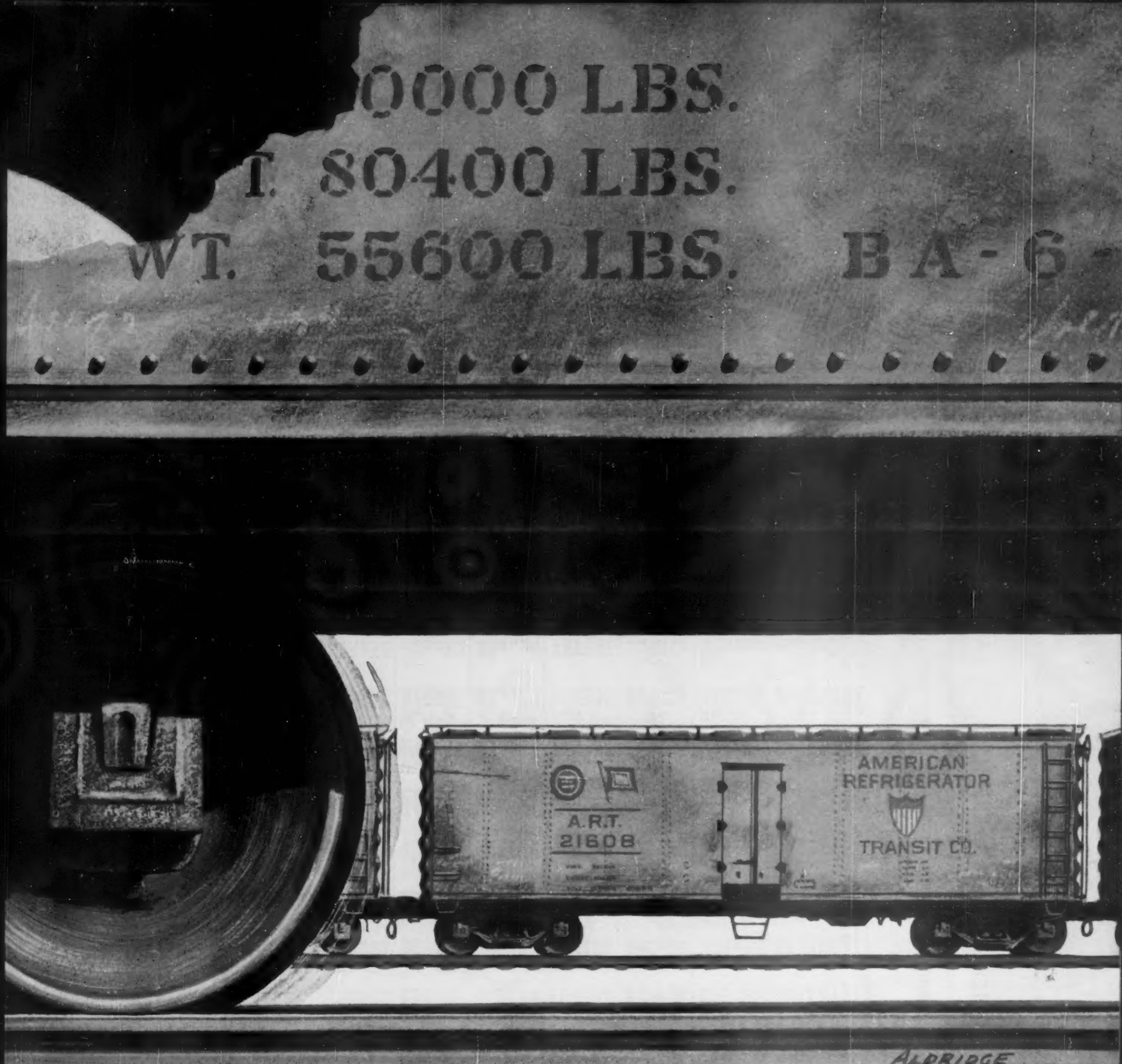
THEY WHET YOUR APPETITE

At any fruit or vegetable counter, the biggest sales-builder of all is the "just-picked" look. That's why the A. R. T. Company has done such a topflight job of providing cars that ride smoothly at higher speeds . . . to bring produce from the orchards and farms to your dinner table safely and quickly.

Is this good service possible only with new cars? Not at all. Older cars—with trucks dating back to the pre-Ride-Control era—are simply brought up to modern riding standards with ASF Ride-Control Packages. Change-over takes only a few minutes and the investment is small—practically nothing, in fact, compared with the way *improved service* retains and *regains* freight revenues.

Safe, prompt arrival of *any* commodity carried on the rails is just as important and desirable as a fresh-looking orange! Further tests on your road will prove how Packages can help you increase *profits* . . . through greater car utilization, better service, fewer damage claims.

Now is the time to make smooth riding another objective of your general repairs program!



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NOW . . . all ASF Ride-Control Packages are fitted with Extended Life Springs

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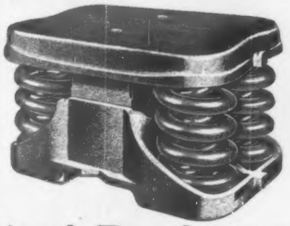


Bring your older cars up to modern riding standards . . . with

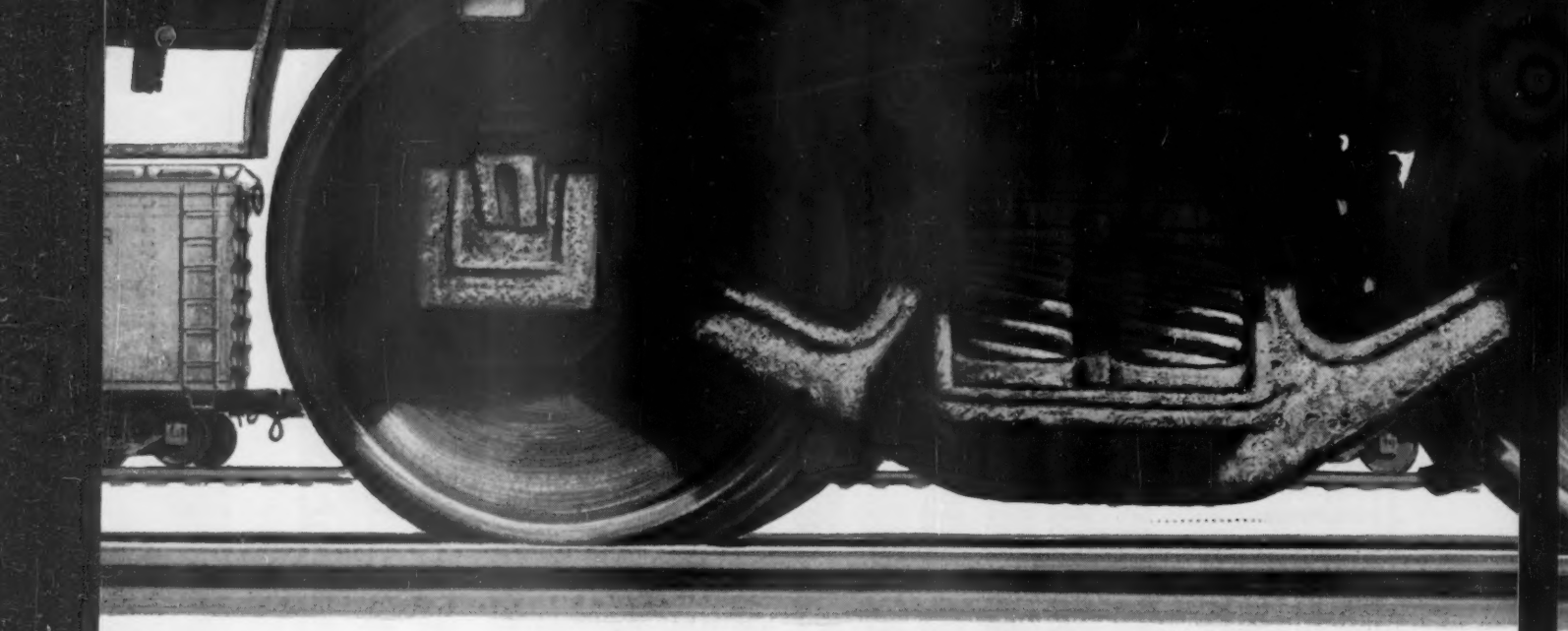
GEARED TO PROGRESS P R I MEMBER

ASF Ride-Control Packages

AMERICAN STEEL FOUNDRIES

Prudential Plaza, Chicago 1, Illinois

Canadian Sales: International Equipment Co., Ltd., Montreal 1, Quebec



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Now is the time to make smooth riding another objective of your general repairs program!

r k b o o k P a g e

AYS
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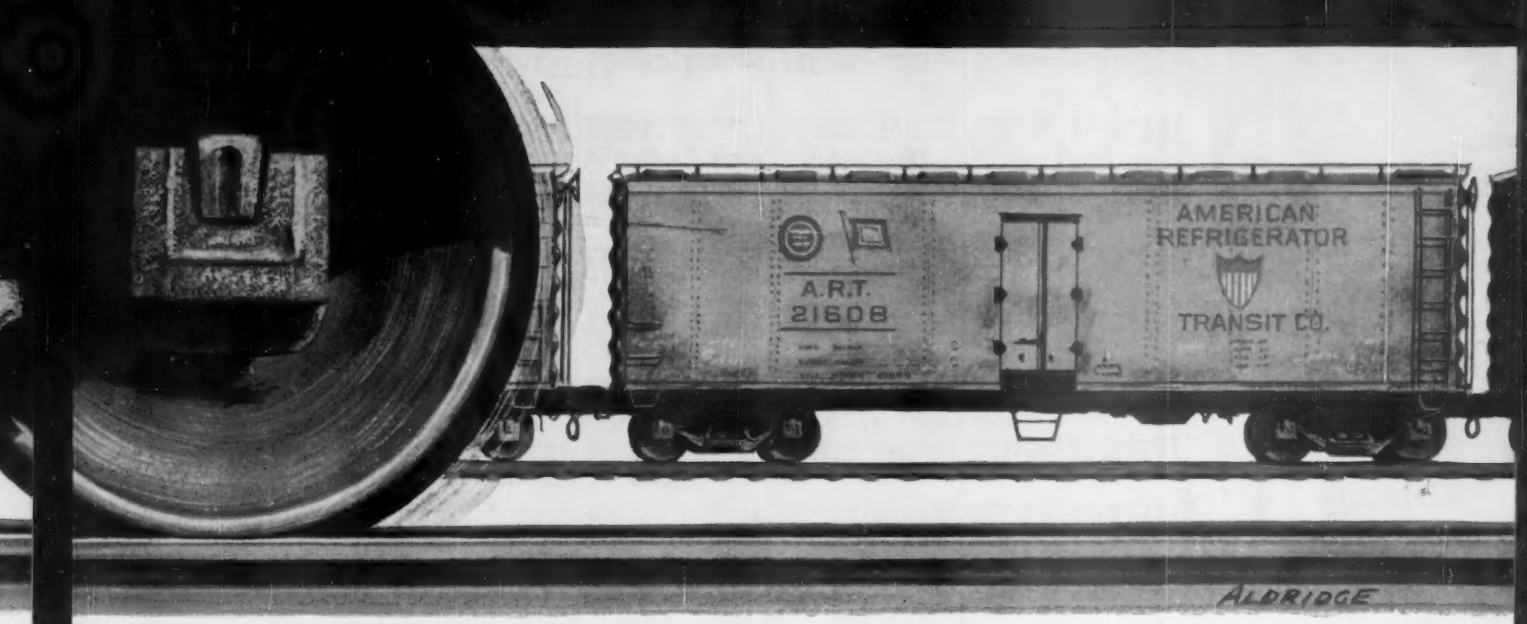
R 1956

		Trans-portation	Total 1956	Total 1955	Operating ratio 1956	Operating ratio 1955	Net from railway operation	Railway tax accruals	Net railway operating income 1956	Net railway operating income 1955
ific		$145	$357	$366	67.7	67.6	$170	$79	$59	$58
		594	1,477	1,373	71.2	71.0	597	283	203	207
		16,002	36,413	33,505	74.2	71.3	12,656	6,758	6,212	6,096
		63,909	143,122	127,346	75.6	71.2	46,231	24,956	21,193	22,799
		72	167	157	45.9	48.0	197	90	72	61
		292	660	640	46.1	46.9	772	344	295	275
		147	297	96	86.8	168.8	45	23	3	—46
		594	1,212	829	88.9	86.8	151	92	—28	3
		136	307	105	86.1	230.0	50	34	26	—20
		560	1,228	892	83.3	86.0	246	135	136	89
		5,442	11,947	11,179	80.5	81.0	2,889	1,650	737	924
		22,149	48,627	45,154	79.1	80.0	12,858	7,325	3,773	4,212
		182	458	375	74.1	129.1	160	85	68	—99
		725	1,911	1,672	68.8	86.5	868	470	393	50
		15,708	31,868	27,155	79.0	77.4	8,468	2,630	4,345	3,811
		62,737	125,861	101,241	82.7	79.4	26,344	9,345	11,935	13,137
		135	249	233	97.1	96.3	7	41	—59	—53
		565	1,036	937	99.3	95.5	8	163	—265	—204
		385	1,148	954	62.2	65.5	699	302	444	301
		1,734	4,663	4,044	64.2	74.2	2,598	958	1,597	930
		483	1,910	1,258	82.6	67.0	402	320	457	559
		1,687	6,693	4,798	101.2	90.3	—81	552	947	1,071
		3,310	5,887	5,551	78.2	80.8	1,645	474	672	315
		13,672	23,963	21,877	81.4	80.6	5,458	2,076	1,077	1,235
		292	672	553	84.6	83.9	123	30	37	39
		1,355	2,491	2,371	71.2	73.2	1,006	135	646	560
		64	158	170	46.2	65.0	184	37	94	28
		323	712	650	52.6	58.7	643	147	283	189
		1,415	2,933	2,812	77.9	77.5	830	250	524	449
		5,698	11,699	11,113	78.1	77.1	3,289	973	2,010	2,043
		2,130	3,999	3,495	78.0	77.0	1,129	542	390	410
		8,667	15,972	14,433	78.7	79.5	4,314	2,062	1,420	1,131
		380	728	644	73.3	65.8	266	47	102	181
		1,595	2,855	2,671	75.9	75.2	905	190	255	276
		11,064	22,891	20,117	67.6	65.7	10,947	5,432	6,163	5,976
		44,531	90,454	77,133	68.5	68.9	41,630	20,035	23,866	20,649
		1,188	2,414	2,104	77.7	83.6	694	212	323	257
		4,820	9,431	8,818	76.7	80.7	2,868	930	1,373	1,249
		152	384	427	58.3	73.2	275	146	126	58
		607	1,471	1,806	53.5	67.6	1,281	683	610	326
		7,167	14,392	13,778	90.0	90.2	1,590	1,183	—135	—258
		30,224	59,034	53,898	97.1	89.9	1,746	4,721	—5,569	—899
		8,032	16,995	15,178	82.2	79.9	3,482	2,044	1,534	1,731
		32,695	62,388	59,405	77.3	78.3	18,324	9,996	8,276	7,309
		854	1,940	1,864	68.0	67.8	911	366	370	368
		3,515	7,828	7,412	67.9	67.4	3,699	1,466	1,468	1,395
		8,072	17,322	15,855	86.4	85.3	2,737	1,527	773	905
		33,320	69,384	62,825	87.5	84.7	9,873	6,146	1,726	3,740
		6,186	12,405	11,661	76.2	75.7	3,872	1,562	1,668	1,459
		24,558	49,124	45,862	77.4	75.6	14,379	5,750	5,976	6,109
		1,516	2,732	2,774	95.1	92.5	120	182	—337	—248
		5,017	7,157	9,987	94.0	88.1	514	753	—1,442	—639
		1,455	1,155	333	94.0	98.7	983	198	904	193
		1,890	4,880	3,133	55.7	55.8	3,887	790	3,508	2,178
		493	929	792	71.4	66.3	373	212	121	16
		1,969	3,766	3,302	75.5	69.4	1,215	696	388	614
		656	1,375	1,427	87.3	85.2	201	42	65	169
		2,709	5,509	5,763	81.4	82.7	1,255	351	442	472



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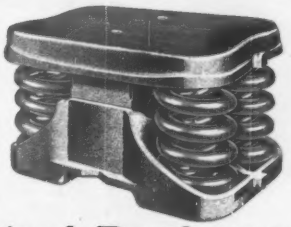

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ASF **Ride-Control Packages**

AMERICAN STEEL FOUNDRIES

Prudential Plaza, Chicago 1, Illinois

Canadian Sales: International Equipment Co., Ltd., Montreal 1, Quebec

right for rail joints

AREA Track Committee Photo

STANDARD Petrolatum HMP

(High Melting Point)

REVENUES AND EXPENSES OF RAILWAYS

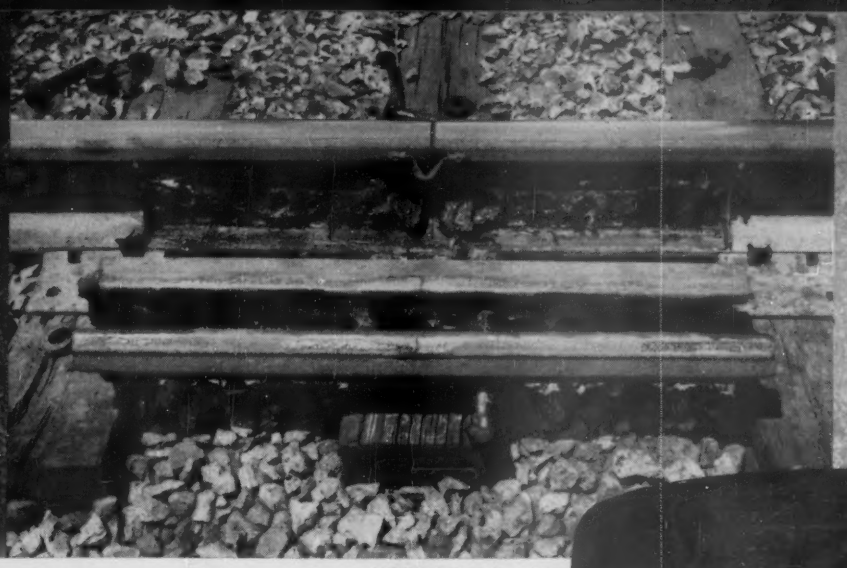
(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1956

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1956	Total (inc. misc.) 1955	Operating Expenses: Maint. Way and Structures: Total 1956	Total 1955	Deprec. and Retirements	Maint. Equipment: Total 1956	Total 1955	Deprec. and Retirements	Traffic	Transportation	Total 1956	Total 1955	Operating ratio 1956	Operating ratio 1955	Net from railway operation	Railway tax accruals	Net railway operating income 1956	Net railway operating income 1955
Akron, Canton & Youngstown	April	171	$514	....	$527	$541	$68	$69	$6	$54	$78	$14	$43	$145	$357	$366	67.7	67.6	$170	$79	$59	$58
	4 mos.	171	2,033	....	2,073	1,932	280	268	22	243	237	54	176	594	1,477	1,373	71.2	71.0	597	283	203	207
Atchison, Topeka & Santa Fe	April	13,124	41,620	$3,472	49,068	46,984	7,372	6,261	672	9,445	9,057	2,047	1,401	16,002	36,413	33,505	74.2	71.3	12,656	6,758	6,212	6,096
	4 mos.	13,124	160,368	12,529	189,353	178,739	27,157	23,026	2,745	38,096	33,835	8,115	5,072	63,909	143,122	127,346	75.6	71.2	46,231	24,956	21,193	22,799
Atlanta & St. Andrews Bay	April	82	358	1	365	327	45	48	3	24	22	6	7	72	167	157	45.9	48.0	197	90	72	61
	4 mos.	82	1,406	3	1,433	1,365	163	158	11	102	122	27	27	292	660	640	46.1	46.9	772	344	295	275
Atlanta & West Point	April	93	256	28	342	57	40	16	6	69	24	13	17	147	297	96	86.8	168.8	45	23	3	—46
	4 mos.	93	1,003	113	1,362	955	190	140	25	267	190	53	70	594	1,212	829	88.9	86.8	151	92	—28	3
Western of Alabama	April	133	289	26	357	46	53	17	8	76	32	18	19	136	307	105	86.1	230.0	50	34	26	—20
	4 mos.	133	1,193	113	1,474	1,037	214	163	33	289	232	73	77	560	1,228	892	83.3	86.0	246	135	136	89
Atlantic Coast Line	April	5,287	11,810	1,720	14,836	13,796	2,465	2,345	164	2,924	2,903	603	440	5,442	11,947	11,179	80.5	81.0	2,889	1,650	737	924
	4 mos.	5,287	48,723	7,548	61,485	56,450	10,214	9,160	619	11,796	11,906	2,435	1,749	22,149	48,627	45,154	79.1	80.0	12,858	7,325	3,773	4,212
Charleston & Western Carolina	April	343	607	....	618	291	135	121	7	105	104	42	20	182	458	375	74.1	129.1	160	85	68	—99
	4 mos.	343	2,738	....	2,779	1,934	598	541	76	439	413	169	81	725	1,911	1,672	68.8	86.5	868	470	393	50
Baltimore & Ohio	April	6,020	36,178	1,705	40,336	35,108	4,753	4,114	675	8,410	6,178	1,032	1,034	15,708	31,868	27,155	79.0	77.4	8,468	2,630	4,345	3,811
	4 mos.	6,020	137,242	5,954	152,194	127,511	16,704	14,238	2,074	34,866	23,238	4,099	3,942	62,737	125,861	101,241	82.7	79.4	26,344	9,345	11,935	13,137
Staten Island Rapid Transit	April	29	194	58	257	242	48	41	12	32	24	2	2	135	249	233	97.1	96.3	7	41	—59	—53
	4 mos.	29	790	237	1,043	981	215	171	47	117	100	7	7	565	1,036	937	99.3	95.5	8	163	—265	—204
Bangor & Aroostook	April	602	1,779	25	1,846	1,456	400	325	16	264	219	101	26	385	1,148	954	62.2	65.5	699	302	444	301
	4 mos.	602	6,960	111	7,261	5,451	1,475	1,300	65	1,083	979	405	104	1,734	4,663	4,044	64.2	74.2	2,598	958	1,597	930
Bessemer & Lake Erie	April	208	2,287	....	2,312	1,878	271	156	17	1,017	584	140	30	483	1,910	1,258	82.6	67.0	402	320	457	559
	4 mos.	208	6,517	....	6,612	5,316	1,248	683	270	3,247	2,195	556	114	1,687	6,693	4,798	101.2	90.3	—81	552	947	1,071
Boston & Maine	April	1,574	5,967	757	7,532	6,879	1,006	1,169	142	990	1,043	208	155	3,310	5,887	5,551	78.2	80.8	1,645	474	672	315
	4 mos.	1,574	22,815	3,370	29,421	27,143	4,194	4,116	570	3,858	3,835	845	587	13,672	23,963	21,877	81.4	80.6	5,458	2,076	1,077	1,235
Canadian Pacific Lines in Maine	April	234	728	39	795	659	114	89	19	245	177	17	8	292	672	553	84.6	83.9	123	30	37	39
	4 mos.	234	3,226	168	3,497	3,239	478	387	91	563	597	70	33	1,355	2,491	2,371	71.2	73.2	1,006	135	646	560
Carolina & Northwestern	April	284	333	....	341	261	59	66	6	18	20	7	4	64	158	170	46.2	65.0	184	37	94	28
	4 mos.	284	1,326	....	1,354	1,107	250	238	25	72	70	28	17	323	712	650	52.6	58.7	643	147	283	189
Central of Georgia	April	1,764	3,311	157	3,763	3,629	560	534	50	572	576	159	171	1,415	2,933	2,812	77.9	77.5	830	250	524	449
	4 mos.	1,764	13,136	670	14,988	14,421	2,238	2,103	196	2,259	2,324	607	692	5,698	11,699	11,113	78.1	77.1	3,289	973	2,010	2,043
Central of New Jersey	April	612	4,281	498	5,127	4,541	677	518	94	907	805	169	76	2,130	3,999	3,495	78.8	77.0	1,129	542	390	410
	4 mos.	613	16,977	1,897	20,286	18,155	2,520	2,297	383	3,638	3,264	686	299	8,667	15,972	14,433	78.7	79.5	4,314	2,062	1,420	1,131
Central Vermont	April	397	858	60	994	979	177	165	16	121	101	11	18	380	728	644	73.3	65.8	266	47	102	181
	4 mos.	397	3,207	263	3,760	3,552	572	624	64	468	439	43	66	1,595	2,855	2,671	75.9	75.2	905	190	255	276
Chesapeake & Ohio	April	5,132	31,439	650	33,838	30,630	3,847	3,502	388	5,586	4,996	1,568	790	11,064	22,891	20,117	67.6	65.7	10,947	5,432	6,163	5,976
	4 mos.	5,132	123,844	2,183	132,084	112,020	14,931	13,360	1,567	22,194	19,280	6,146	3,116	44,531	90,454	77,133	68.5	68.9	41,630	20,035	23,866	20,649
Chicago & Eastern Illinois	April	868	2,686	178	3,108	2,518	407	381	39	486	469	134	137	1,188	2,414	2,104	77.7	83.6	694	212	323	257
	4 mos.	868	10,558	831	12,298	10,930	1,365	1,443	126	1,920	1,827	533	543	4,820	9,431	8,818	76.7	80.7	2,868	930	1,373	1,249
Chicago & Illinois Midland	April	130	643	....	659	584	64	64	22	92	119	24	31	152	384	427	58.3	73.2	275	146	126	58
	4 mos.	130	2,692	....	2,751	2,673	188	268	57	369	486	97	125	607	1,471	1,806	53.5	67.6	1,281	683	610	326
Chicago & North Western	April	7,836	13,094	1,344	15,983	15,275	2,748	2,455	280	3,287	3,021	900	369	7,167	14,392	13,778	90.0	90.2	1,590	1,183	—135	—258
	4 mos.	7,836	48,840	5,546	60,781	59,953	10,180	9,336	1,310	13,727	11,459	3,543	1,559	30,224	59,034	53,898	97.1	89.9	1,746	4,721	—5,569	—899
Chicago, Burlington & Quincy	April	8,806	15,865	1,451	19,578	18,989	2,939	2,883	416	3,692	3,420	905	530	8,032	16,095	15,178	82.2	79.9	3,482	2,044	1,534	1,731
	4 mos.	8,806	66,510	5,702	80,712	75,899	9,599	9,609	1,542	14,315	13,759	3,592	2,188	32,695	62,388	59,405	77.3	78.3	18,324	9,996	8,276	7,309
Chicago Great Western	April	1,470	2,687	12	2,851	2,750	425	415	54	450	411	123	126	854	1,940	1,864	68.0	67.8	911	366	370	368
	4 mos.	1,470	10,840	36	11,527	10,990	1,701	1,662	172	1,826	1,582	487	475	3,515	7,828	7,412	67.9	67.4	3,699	1,466	1,468	1,395
Chicago, Mil., St. Paul & Pacific	April	10,641	16,662	1,236	20,059	18,578	3,441	3,104	390	4,118	3,942	898	565	8,072	17,322	15,855	86.4	85.3	2,737	1,527	773	905
	4 mos.	10,641	66,307	4,923	79,257	74,164	12,165	11,125	1,629	17,077	15,667	3,624	2,105	33,320	69,384	62,825	87.5	84.7	9,873	6,146	1,726	3,740
Chicago, Rock Island & Pacific	April	7,597	13,510	1,364	16,277	15,397	2,067	2,080	241	2,738	2,658	582	530	6,186	12,405	11,661	76.2	75.7	3,872	1,562	1,668	1,459
	4 mos.	7,597	52,508	5,477	63,504	60,687	7,775	7,360	1,006	11,093	10,492	2,313	2,136	24,558	49,124	45,862	77.4	75.6	14,379	5,750	5,976	6,109
Chic., St. Paul, Minn. & Omaha	April	1,616	2,112	118	2,452	2,459	427	425	44	400	411	78	71	1,306	2,332	2,274	95.1	92.5	120	182	—337	—248
	4 mos.	1,616	8,939	516	10,301	10,311	1,550	1,546	180	1,802	1,548	313	281	5,617	9,787	9,087	95.0	88.1	514	753	—1,442	—639
Clinchfield	April	295	2,126	....	2,139	549	235	41	19	352	145	95	56	455	1,155	323	54.0	58.7	983	198	904	193
	4 mos.	295	8,721	....	8,767	5,611	1,106	766	78	1,444	941	379	224	1,890	4,880	3,133	55.7	55.8	3,887	790	3,508	2,178
Colorado & Southern	April	718	1,116	58	1,301	1,196	146	117	17	195	153	42	24	493	929	792	71.4	66.3	373	212	121	16
	4 mos.	718	4,208	245	4,991	4,757	526	560	65	872	644	170	124	1,969	3,766	3,302	75.5	69.4	1,225	696	388	614
Ft. Worth & Denver	April	1,362	1,272	129	1,575	1,675	268	396	23	269	249	45	71	656	1,375	1,427	87.3	85.2	201	42	65	169
	4 mos.	1,362	5,566	518	6,764	6,973	950	1,549	113	1,142	1,062	179	271	2,709	5,509	5,763	81.4	82.7	1,255	351	442	472

(statistics continued on page 70)

right for rail joints



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(High Melting Point)

If you use STANDARD Petrolatum HMP for rail joint lubrication and corrosion protection you get some important benefits. Here are three:

1 Easier track maintenance.

2 Less chance of damage from joint freezing.

3 Longer rail joint life.

This is how STANDARD rail joint lubricants work to give you these benefits: Rail joint bolts are prevented from corroding. Nuts turn easily when joints have to be opened or tightened. Lubricant protects bolts from freezing and shearing in cold weather. Joint bars and rails are protected from wear, their service life is extended.

STANDARD Petrolatum HMP seals joints thoroughly and one application lasts years. The lubricant won't run off in hot weather or freeze up when it's cold. It is not affected by water washing or dissolved by brine dripping from refrigeration cars. It is easy to work with and apply.

Get more information about STANDARD Petrolatum HMP and other Standard Oil maintenance of way lubrication products. Write or call Standard Oil Company, 910 S. Michigan Avenue, Chicago 80, Illinois.

Quick Facts About
STANDARD Petrolatum HMP

- Seals thoroughly
- Unaffected by high or low temperatures
- Won't water wash
- Not affected by brine dripping
- Penetrates and protects rail, joint bar, nut and bolt threads

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STANDARD OIL COMPANY
(Indiana)

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Open corrugations filled with Stonefelt. ▶

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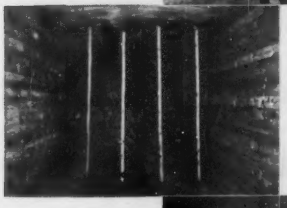

End lining is applied the usual way. ▶

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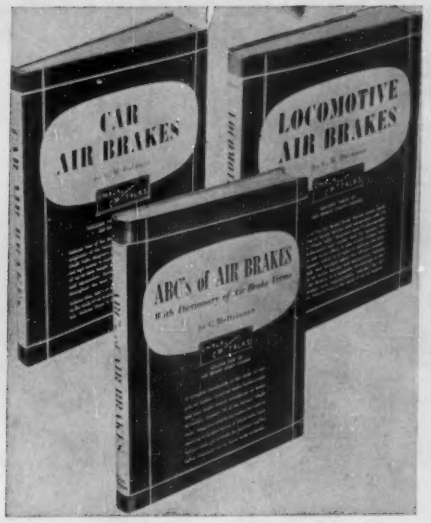
REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1956

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1956	Total (inc. misc.) 1955	Operating Expenses: Maint. Way and Structures: Total 1956	Total 1955	Deprec. and Retirements	Maint. Equipment: Total 1956	Total 1955	Deprec. and Retirements	Traffic	Transportation	Total 1956	Total 1955	Operating ratio 1956	Operating ratio 1955	Net from railway operation	Railway tax accruals	Net railway operating income 1956	Net railway operating income 1955
Colorado & Wyoming	April	40	193	....	330	286	28	33	1	22	30	11	2	123	190	178	57.5	62.2	140	75	58	47
	4 mos.	40	825	....	1,338	1,114	95	115	6	130	130	44	6	515	802	716	59.9	64.2	536	300	225	172
Delaware & Hudson	April	792	4,523	137	4,801	4,061	503	504	26	669	747	174	95	1,556	3,088	3,001	64.3	73.9	1,713	778	989	752
	6 mos.	792	17,711	616	18,877	16,565	2,027	2,038	178	2,766	3,030	693	374	6,382	12,572	12,104	66.6	73.1	6,305	3,184	3,401	2,674
Delaware, Lackawanna & Western	April	962	6,074	788	7,534	6,733	901	802	141	1,044	1,028	328	195	3,519	6,050	5,416	80.3	80.5	1,485	441	907	579
	4 mos.	962	23,403	3,199	29,257	26,423	3,175	3,012	546	4,264	4,063	1,302	765	14,286	23,955	21,528	81.9	81.5	5,302	1,768	2,849	1,988
Denver & Rio Grande Western	April	2,155	5,860	190	6,242	6,022	880	851	104	974	932	283	207	1,853	4,217	5,040	67.6	67.1	2,025	1,011	1,086	999
	4 mos.	2,155	23,444	844	25,080	23,969	2,693	2,422	394	3,836	3,754	1,101	870	7,591	16,164	15,086	64.5	62.9	8,916	4,578	4,581	4,560
Detroit & Toledo Shore Line	April	50	625	....	670	686	79	76	4	68	61	21	18	210	390	370	58.2	53.9	280	105	73	91
	4 mos.	50	2,906	....	3,119	2,974	331	319	13	281	251	84	73	916	1,664	1,515	53.4	50.9	1,455	534	385	409
Detroit, Toledo & Ironton	April	464	1,670	....	1,748	1,660	318	265	28	362	244	91	53	436	1,248	1,016	71.4	61.2	500	201	257	391
	4 mos.	464	7,104	....	7,382	6,785	1,147	1,011	121	1,407	888	363	219	1,863	4,947	3,955	67.0	58.3	2,436	972	1,265	1,561
Duluth, Missabe & Iron Range	April	569	3,854	1	4,474	3,345	425	362	94	668	543	128	12	1,511	2,774	2,100	62.0	62.8	1,700	345	1,337	983
	4 mos.	569	5,045	2	5,842	4,493	1,753	1,318	386	2,903	2,149	512	43	3,444	8,723	6,534	149.3	145.4	—2,881	682	—3,554	—2,649
Duluth, South Shore & Atlantic	April	544	603	3	634	651	114	111	11	158	138	24	31	221	548	493	86.5	75.8	86	34	16	109
	4 mos.	548	2,508	15	2,626	2,329	465	446	41	539	521	95	118	890	2,109	1,945	80.3	83.5	517	128	298	194
Duluth, Winnipeg & Pacific	April	175	493	1	499	418	73	60	4	72	68	2	6	239	399	337	79.9	80.7	100	42	—35	—29
	4 mos.	175	2,503	2	2,529	2,006	255	235	18	321	282	8	25	1,055	1,689	1,447	66.8	72.1	839	192	239	65
Elgin, Joliet & Eastern	April	236	3,834	....	4,702	4,128	313	260	28	830	534	109	37	1,747	3,127	2,412	66.5	58.4	1,576	735	383	603
	4 mos.	236	15,576	....	18,798	15,664	1,081	898	110	3,386	2,119	432	143	7,020	12,431	9,301	66.1	59.4	6,367	2,807	1,565	2,268
Erie	April	2,225	13,111	578	14,770	12,871	1,814	1,555	223	2,179	2,078	516	390	6,286	11,414	10,102	77.3	78.5	3,356	1,337	1,329	1,272
	4 mos.	2,225	50,770	2,244	56,949	50,270	5,736	5,103	882	8,690	8,186	2,053	1,545	25,205	44,142	39,373	77.5	78.3	12,807	5,045	4,943	4,682
Florida East Coast	April	571	2,957	599	3,901	3,604	489	459	44	730	623	99	85	1,344	2,839	2,501	72.8	69.4	1,062	296	442	435
	4 mos.	571	11,015	2,770	15,177	14,566	1,983	1,844	191	2,686	2,384	597	342	5,138	10,921	9,995	72.0	68.6	4,256	1,106	1,915	2,011
Georgia Railroad	April	321	617	17	727	100	129	50	17	135	62	33	38	302	641	229	88.2	229.5	86	41	81	—101
	4 mos.	321	2,595	60	3,016	1,956	519	377	44	553	403	133	152	1,240	2,614	1,858	86.7	95.0	402	165	362	109
Georgia & Florida	April	332	291	....	297	208	90	62	3	38	28	8	20	85	251	190	84.5	91.2	46	17	9	—12
	4 mos.	332	1,218	....	1,238	1,045	362	295	14	151	124	32	81	352	1,015	863	82.0	82.6	223	67	63	38
Grand Trunk Western	April	951	4,609	218	5,228	5,517	678	528	57	918	721	94	88	2,595	4,491	3,770	85.9	68.3	737	372	—271	1,015
	4 mos.	951	18,931	886	21,421	20,518	2,498	2,194	219	3,771	2,946	375	333	10,480	17,911	15,191	83.6	74.0	3,510	1,466	—204	2,451
Great Northern	April	8,285	20,099	681	22,284	18,868	4,341	4,592	299	4,166	3,434	745	501	7,667	17,593	15,915	78.9	84.3	4,691	1,841	2,565	796
	4 mos.	8,285	70,336	2,854	78,038	71,141	14,006	13,119	1,117	16,572	13,614	2,987	1,954	29,367	65,499	58,050	83.9	81.6	12,539	6,803	4,384	4,659
Green Bay & Western	April	224	361	....	368	354	84	67	4	40	36	9	23	108	274	245	74.6	69.3	94	45	17	32
	4 mos.	224	1,452	....	1,484	1,484	277	213	17	188	150	37	91	449	1,083	942	73.0	64.3	400	182	104	168
Gulf, Mobile & Ohio	April	2,757	6,339	314	7,108	7,463	998	1,105	67	1,400	1,409	284	297	2,136	5,209	5,203	73.3	69.7	1,899	801	644	861
	4 mos.	2,757	24,567	1,234	27,664	27,621	3,988	4,123	304	5,201	5,069	1,138	1,155	8,746	20,577	19,787	74.4	71.6	7,087	3,000	2,485	3,173
Illinois Central	April	6,532	20,244	1,679	24,318	25,475	3,790	3,257	427	4,003	3,886	789	587	8,655	18,079	17,069	74.3	67.0	6,240	3,343	2,280	2,786
	4 mos.	6,531	80,747	7,054	97,253	93,884	14,666	13,078	1,698	16,617	15,640	3,152	2,338	35,468	73,408	68,526	75.5	73.0	23,845	12,563	8,718	9,498
Illinois Terminal	April	355	912	29	1,065	939	133	145	23	189	168	43	47	371	801	746	75.2	79.4	264	123	116	72
	4 mos.	355	3,541	130	4,171	3,644	509	480	88	795	601	170	185	1,559	3,298	2,979	79.1	81.8	873	359	344	240
Kansas City Southern	April	891	3,583	83	4,010	3,694	396	390	42	460	420	93	95	1,157	2,241	2,080	55.9	56.3	1,769	810	678	680
	4 mos.	891	14,025	388	15,749	14,432	1,413	1,372	176	1,919	1,643	369	410	4,661	8,937	8,069	56.7	55.9	6,813	3,103	2,657	2,645
Kansas, Oklahoma & Gulf	April	327	485	....	487	396	83	73	12	32	31	11	31	106	275	252	56.5	63.7	212	92	82	50
	4 mos.	327	1,852	....	1,859	1,587	287	225	38	119	120	45	119	434	1,049	953	56.4	60.0	810	307	349	223
Lake Superior & Ishpeming	April	149	378	....	473	242	48	55	7	90	63	17	2	106	265	201	55.9	83.0	209	35	195	30
	4 mos.	149	557	....	670	391	173	181	28	318	262	69	9	255	818	710	122.0	181.6	—148	129	—212	—367
Lehigh & Hudson River	April	96	274	....	275	273	38	33	2	35	31	8	17	97	200	177	72.8	64.7	75	31	9	34
	4 mos.	96	1,067	....	1,067	1,071	140	133	9	138	117	33	64	387	785	711	73.5	66.3	283	110	42	118
Lehigh & New England	April	178	686	....	692	627	73	70	6	193	152	41	20	214	540	494	78.0	78.9	152	40	230	91
	4 mos.	178	2,345	....	2,366	2,151	271	300	25	775	623	161	78	805	2,098	1,902	88.7	88.4	268	145	569	229
Lehigh Valley	April	1,150	5,581	259	6,125	5,524	756	685	94	991	976	211	154	2,694	4,847	4,399	79.1	79.6	1,277	447	698	622
	4 mos.	1,150	20,940	1,057	23,236	21,583	2,855	2,653	369	3,943	3,806	840	601	10,668	19,085	17,481	82.1	81.0	4,152	1,689	1,903	2,158
Litchfield & Madison	April	44	314	....	318	280	10	16	1	25	25	6	40	64	158	152	49.7	54.2	160	67	50	41
	4 mos.	44	1,293	....	1,313	1,123	44	50	3	100	101	23	172	255	651	610	49.6	54.3	663	272	204	173
Long Island	April	351	1,301	4,121	5,560	5,112	774	668	106	1,059	957	166	24	2,696	4,719	4,266	84.9	83.5	841	337	269	225
	4 mos.	351	4,555	15,459	20,663	19,232	3,223	2,558	471	4,378	3,747	641	106	10,831	19,222	16,894	93.0	87.8	1,441	1,358	—899	—49
Louisiana & Arkansas	April	746	2,123	47	2,274	2,205	211	212	19	298	264	94	82	655	1,330	1,214	58.5	55.1	943	361	470	490
	4 mos.	751	8,601	207	9,207	8,901	862	863	80	1,163	1,042	370	330	2,641	5,328	4,871	57.9	54.7	3,879	1,595	1,843	1,985

(statistics continued on page 78)



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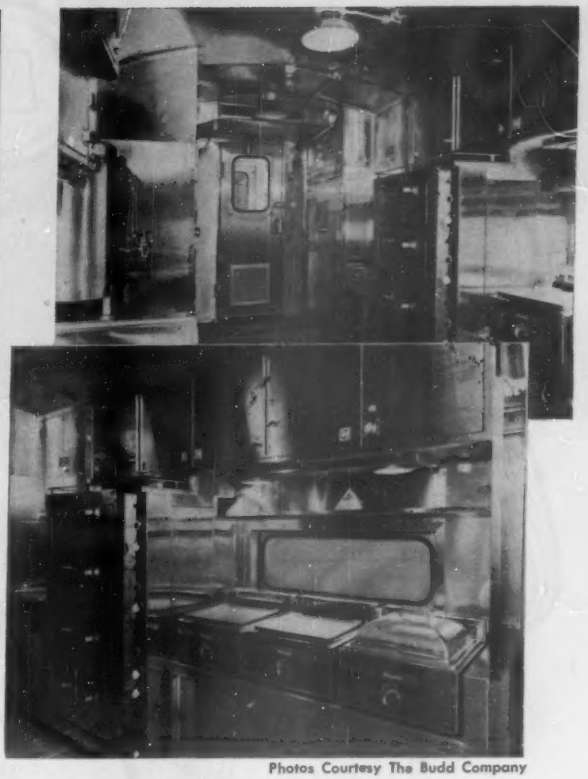

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On the Revolutionary New Pennsy Tubular Train

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A brilliant new page in railroad history will be written when the new Pennsy Tubular Train goes into service. On this train an all-electric kitchen built by Colonna, pictured above, is one of the outstanding new features. Here is a totally new pioneering thought in railroad food service. Foods will be pre-cooked at the main commissary, quick frozen and stored on the train under electrical refrigeration, heated in specially provided electric ovens, and served by attendants at chair side. Electric grills are available for the preparation of snacks and sandwiches. Entire concept is to assure fast, convenient service at attractive prices. We are proud of the opportunity to cooperate with The Budd Company, builders of this notable new train.

A QUALITY C

ANGELO COLONNA

Designers and Manufacturers

WESTMORELAND & BOUDINOT ST.,
PHILADELPHIA 34, PA.

FOOD SERVICE EQUIPMENT

CONFUSED by too many Journal Box "Gadgets"?

There's a lot of shouting and drum-beating these days about journal bearing lubrication. What with all the pads, packs, pouches, and parcels it's no wonder railroad maintenance men are getting confused!

Let's face it: These gadgets could make life pretty complicated. Though being used in only about 10% of the boxes now, all these contrivances present problems when your road finds them in cars in interchange . . . "jack" some, not others . . . "hook" some, not others . . . turn some over, leave others as is. Pretty rough on the hired help.

The fact is that the new, more uniform thread packing which our Institute developed in cooperation with the AAR is used in 90% or more of the nation's freight rolling stock for journal bearing lubrication.

Thread Packing is the most satisfactory and least expensive way known to provide efficient bearing lubrication – and recent developments make it even better! The old problem of waste grab (generally resulting from poor packing preparation or careless maintenance) can be prevented by the use of an inexpensive, approved journal stop or retainer. And the new all-weather oil adopted by the AAR helps eliminate seasonal problems.

Members of our Institute have labored long and hard to improve thread packing. The Institute of Thread Machiners' Seal on bales of new packing now guarantees quality which meets or exceeds AAR specifications. Our member companies will be glad to offer help and advice on your packing problems. Let us know if we can help you.

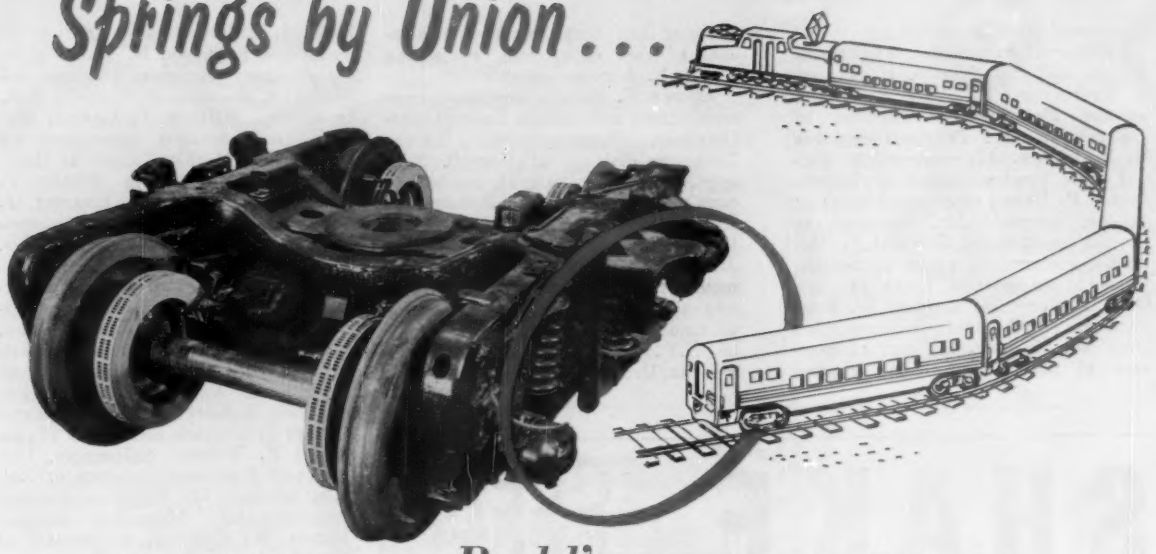
INSTITUTE OF JOURNAL BOX PACKING MANUFACTURED ACCORDING TO A. A. R. SPECIFICATIONS MEMBER THREAD MACHINERS

INSTITUTE OF THREAD MACHINERS, INC.

141 East 44th Street, New York 17, New York

Atlas Processing Corp., New York, N. Y.
Meyer Burstein & Sons, Neenah, Wisconsin
Dallas Waste Mills, Dallas, Texas
The J. Milton Hagy Waste Works, Philadelphia, Pa.
John J. McGrath, Inc., Philadelphia, Pa.
Miller Waste Mills, Inc., Winona, Minn.
National Waste Company, New York, N. Y.
O'Neill Brothers, Inc., Philadelphia, Pa.
The Pittsburgh Waste Co., Inc., Swissvale, Pa.
Riverside Mills, Augusta, Ga.
Royal Manufacturing Company, Perth Amboy, N. J.
Southland Manufacturing Co., Inc., Norfolk, Va.
Twin City Textile Mills Waste Co., St. Paul, Minn.

Springs by Union...



Truck Springs for *Budd's* Pennsylvania Railroad

Tubular Train Furnished by . . .

UNION SPRING and MANUFACTURING CO.

NEW KENSINGTON, PENNSYLVANIA • OFFICES IN ALL PRINCIPAL CITIES

For Progressive Railroading

MILLER

PAD LUBRICATOR

- *Volume quantities—immediate delivery*
- *Cost—$40 per carset (for all sizes)*
- *Life expectancy—6 years*

MILLER LUBRICATOR CO., WINONA, MINN.

(Continued from page 58)

ERIE.—Herman A. Bockman, general agent at Atlanta, transferred to Washington, D.C., succeeding **George Pettersen,** transferred to Philadelphia. Mr. Pettersen replaces **M. R. Fitzgerald,** promoted to general New England agent at Boston. **James P. Drew,** commercial agent at Atlanta, succeeds Mr. Bockman as general agent there. **Edward F. McHugh,** commercial agent at Seattle, promoted to general agent at New Orleans, succeeding **Eugene W. Burnett,** retired because of illness. **Arthur W. Meinke,** assistant to manager of mail, baggage and express traffic at New York, promoted to manager of that department, succeeding **Philip F. Arroyo,** retired.

Oliver G. Carey, supervisor communications and signals, Susquehanna-Delaware, Wyoming and Buffalo-Rochester divisions at Hornell, N.Y., appointed general signal inspector—construction, Cleveland. **Robert H. Dean,** assistant signal supervisor, Delaware, Susquehanna and Wyoming divisions at Binghamton, N.Y., promoted to supervisor communications and signals, Allegany-Bradford-Meadville and B&SW divisions at Salamanca, N.Y., to succeed **G. I. Molusky,** who replaces Mr. Carey at Hornell.

Paul M. Miller, foreman signal maintenance at Callicoon, N.Y., named assistant signal supervisor, Terminal and New York divisions at Paterson, N.J., to succeed **William F. Caden,** promoted to supervisor communications and signals, Marion division at Huntington, Ind., replacing **Elmer F. Champlin,** retired. **Eugene J. Gaughan,** foreman signal maintenance at Olean, N.Y., succeeds Mr. Dean at Binghamton.

Francis E. Navin, assistant superintendent, Mahoning division, Youngstown, promoted to superintendent, Marion division at Huntington, succeeding **Edwin J. Robisch,** transferred to the Kent division at Marion, replacing **Robert H. Lewis,** granted a leave of absence because of illness. **Ward F. Wilson,** trainmaster, Buffalo and Rochester divisions at Buffalo, succeeds Mr. Navin as assistant superintendent, Mahoning division. **James W. Connor,** trainmaster at Port Jervis, transferred to Jersey City, succeeding **Wilbur J. Betz,** named passenger trainmaster at the latter point. Mr. Betz replaces **James W. Conway,** who succeeds Mr. Wilson a Buffalo. **Howard B. Hart,** road foreman of engines at Jersey City, promoted to trainmaster—road foreman of engines at Port Jervis.

John L. Leonard, track supervisor, Delaware division at Susquehanna, Pa., appointed temporary assistant to engineer maintenance of way, Western district, Youngstown, Ohio.

FORT DODGE, DES MOINES & SOUTHERN.—Roy G. Hawkinson, appointed vice-president — traffic at Boone, Iowa. Mr. Hawkinson was formerly freight traffic manager of the **Chicago Great Western** at Chicago.

FREIGHT TRAFFIC COMMITTEE — CENTRAL TERRITORY RAILROADS.—Charles S. Baxter appointed chairman at Chicago, succeeding **John R. Wall,** who resigned to join Republic Steel Corporation in Cleveland. Mr. Baxter was formerly chairman, Railroad Tariff Research Group at Washington, D. C. **Edward V. Grosvenor,** a member of the Tariff Research Group, named acting chairman of that group.

MILWAUKEE.—Ira G. Wallace, agent at Milwaukee, Wis., appointed supervisor of stations at Chicago. **L. E. Martin,** general agent at Rockford, Ill., succeeds Mr. Wallace.

A. S. Price, district freight and passenger agent at Oakland, Cal., named division freight and passenger agent at Miles City, Mont., to replace **C. S. Winship,** retired. Mr. Price's successor is **W. V. Dilworth,** traveling freight agent at San Francisco.

P. J. Weiland, division superintendent at Marion, Ia., appointed general superintendent at Milwaukee, Wis., succeeding **L. W. Palmquist,** transferred to Chicago. **A. O. Thor,** superintendent at Miles City, Mont., transferred to Savanna, Ill., to succeed

SHAKE CLEAN FAST

Patented

WITH THE

"RED DEVIL" Car Shaker

- Soon pays for itself
- Keeps your men out of R R cars at your power plants.
- Simple one-man operation, for coal or wet sand.
- Quickly and easily installed in your unloading plant.

LOWER IN PRICE THAN ALL OTHERS.

Write for a list of
RAILROAD USERS, AND PRICE.

ROSS AND WHITE COMPANY.
CHICAGO DAILY NEWS BUILDING, CHICAGO

J. T. Hayes, who replaces Mr. Weiland. Mr. Thor's successor is **M. T. Sevedge,** superintendent as Spokane, Wash., who in turn is succeeded by **R. G. Scott,** assistant superintendent at Green Bay, Wis. **W. M. Freund,** Chicago Terminals trainmaster at Bensenville, Ill., replaces Mr. Scott at Green Bay, and in turn is replaced by **H. J. Mahoney,** special assistant to general manager at Chicago.

Andrew P. Hedin, chief clerk, general freight department at Chicago, appointed assistant general freight agent there.

George J. Johnston, district master mechanic at Deer Lodge, Mont., named assistant superintendent motive power, Lines West at Tacoma, Wash.

NORFOLK SOUTHERN. — Arthur J. Winder, general counsel, elected vice-president and general counsel; **C. H. Ware,** general traffic manager, elected vice-president — traffic, and **M. C. Jennette,** assistant vice-president, elected vice-president—operations, all at Norfolk.

R. L. Ford, traffic manager at Norfolk, appointed general traffic manager there. **M. L. Butterton** promoted to general agent at Richmond, succeeding **Joseph L. McGhee,** promoted (Railway Age, June 4, p. 52).

J. E. Andrews, freight traffic manager, appointed general traffic manager—sales and service, at Norfolk. **C. A. Sturtevant,** assistant traffic manager, named freight traffic manager, rates and divisions, at Norfolk.

SEABOARD. — W. A. Moore, diesel supervisor (system) at Tampa, Fla., retired May 31.

Charles T. Abeles, senior general attorney, named general solicitor in charge of the law department at Norfolk, Va. **James B. McDonough, Jr.,** assistant general counsel, assigned to special duties.

Charles T. Abeles

SOUTHERN.—John D. Seay, general auditor of revenues at Atlanta, retired June 1. **Noah Garner,** auditor freight accounts, appointed auditor of revenues and **George H. Keller,** assistant auditor freight accounts, named auditor of freight accounts, both at Atlanta. **William R. Divine** appointed assistant comptroller at Washington, D. C.

L. L. Oliver, commerce counsel at Washington, retired June 1.

B. Robert Hill, officer's assistant, appointed assistant to freight traffic manager at Washington.

J. R. Derieux, Jr., assistant engineer at Cincinnati, appointed assistant to chief engineer, maintenance of way and structures at Birmingham. **Edward A. Gill** named division engineer at Alexandria, Va.

T. Leslie Smith, officer's assistant, promoted to assistant to general freight agent, with headquarters remaining at Atlanta, Ga.

SOUTHERN FREIGHT ASSOCIATION — SOUTHERN CLASSIFICATION COMMITTEE. — Robert E. Boyle, Jr., elected chairman of these organizations to succeed **Joseph G. Kerr,** retired. **O. W. South, Jr.,** elected vice-chairman of both organizations to succeed Mr. Boyle. **John H. McMahan** elected chairman, Standing Rate Committee, Southern Freight Association.

SIX MAJOR RAILROADS Speed up Weighing

...with Cox & Stevens Electronic Track Scales

Eleven Cox and Stevens track scales on six major railroads are weighing cars in motion accurately and quickly . . . reducing costs and easing the car shortage by getting freight rolling sooner. Linked up with automatic tabulating systems, these scales also eliminate errors in paper work and cut down on accounting time. Two other railroads have specified Cox and Stevens scales for installation this year.

Cox and Stevens track scales are well past the experimental stage. Since the pioneer installation in 1949, they've been tried, tested . . . and reordered. Southern Railway, for example, bought its first Cox and Stevens scale for Birmingham in 1952, its second for Chattanooga in 1955, and its third for Atlanta in 1956.

See what Cox and Stevens electronic track scales can do to reduce weighing costs, improve utilization of rolling stock and speed up record keeping. Send for Bulletin No. 3003, "A Test Report on Cox and Stevens Electronic Track Scales."

COX & STEVENS ELECTRONIC SCALES DIV.

Revere CORPORATION OF AMERICA

WALLINGFORD, CONNECTICUT A Subsidiary of Neptune Meter Company

24

New L-M Station Platform Lighting Improves Operations at Havre, Mont.

The full 1500-foot length of the Great Northern's Havre, Mont., station platforms is lighted to an average of 1.98 foot candles by a new Line Material incandescent lighting installation.

The lighting system consists of 40 L-M Spherolites®, mounted on mastarms or catenary supports. On the station-side platform, six Spherolites are supported by 4-foot brackets on steel poles, four are mounted on brackets attached to the building, and another ten are suspended from a catenary support.

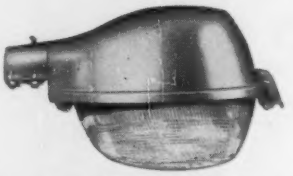
On the platform between east- and westbound trains, the fewest possible support poles were desired. To achieve this, Great Northern engineers designed a catenary support system. Poles are spaced 300 feet apart with four luminaires suspended from a messenger and a 7/16-inch guy strand in each of five spans. End poles were installed offset to counteract the inward pull of the 6000-pound loading of cable and lighting units.

The units are equipped with 500-watt incandescent lamps. Four luminaires on the station side provide Type II distribution; all the others Type I. According to C. G. Nelson, Assistant Electrical Engineer of the Great Northern, the new installation and better lighting have improved operations, speeded service and baggage handling, and increased passenger comfort at this important western division point.

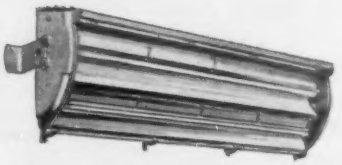
Get Complete Information on L-M Outdoor Lighting

L-M offers a full line of incandescent, mercury vapor, and fluorescent lighting for streets, yards, approaches, areas. Get in touch with the L-M Field Engineer for complete information and bulletins; or write Railway Sales Department, Line Material Company, Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

L-M's Spherolite Luminaire, the type used in the Great Northern Havre Station Platform installation. The Spherolite is a highly efficient unit, providing wide choice of light distribution, many desirable features. It may be used for either incandescent or mercury vapor lamps.



L-M's Ovalite™, specially designed for mercury vapor, is available in both series and multiple styles, a highly efficient unit with service-safe features.

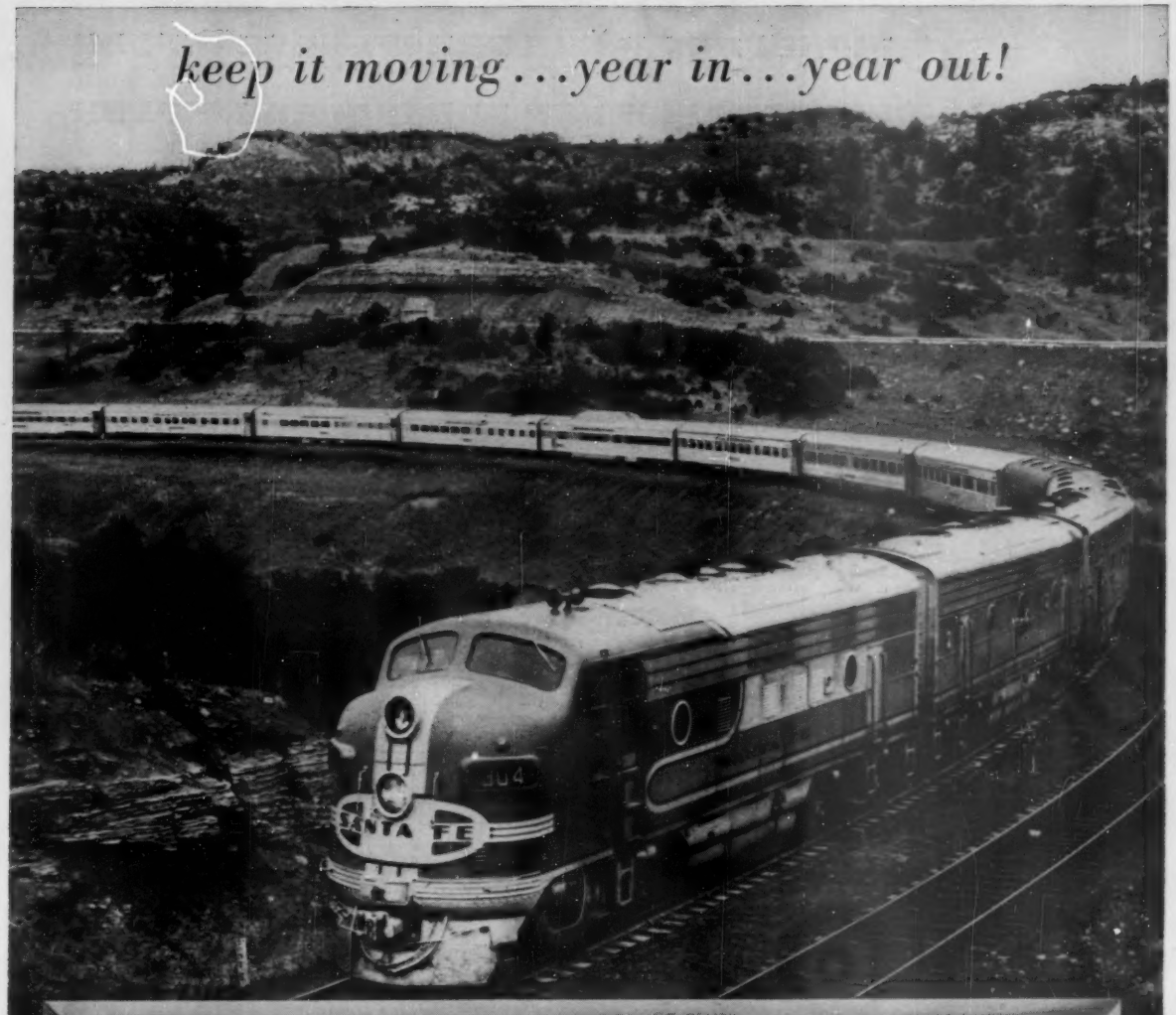


L-M's 2- and 4-lamp fluorescent units are particularly desirable for lighting areas such as classification yards, because of their extremely low glare factor.

LINE MATERIAL

Street Lighting

keep it moving . . . year in . . . year out!



MAKE IT STAINLESS!

There's real economy in using Stainless Steel equipment.

For structural parts or decorative members, here's a virtually indestructible metal that effectively resists the corrosive effects of dirt, fumes, water and weather.

Stainless adds beauty to observation lounges and dining cars . . . years and years of productive service to tank and refrigerator cars. It helps eliminate costly bulk and dead-weight, too. All this at no expense in strength or safety.

No wonder more and more railroads are all aboard for stainless. Put it to work for you, too . . . to fight deterioration, improve efficiency and operations through lower maintenance and repair costs.

Your supplier has full particulars on how you can take advantage of stainless steel in your operation. Contact him today.

MAKE IT BETTER . . . MAKE IT STAINLESS!

Our 50 Years of Progress

VANADIUM CORPORATION OF AMERICA

420 Lexington Avenue, New York 17, N. Y.
Pittsburgh • Chicago • Cleveland • Detroit
Producers of alloys, metals and chemicals

VANCORAM

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1956

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1956	Total (inc. misc.) 1955	Operating Expenses: Maint. Way and Structures: Total 1956	Total 1955	Deprec. and Retirements	Maint. Equipment: Total 1956	Total 1955	Deprec. and Retirements	Traffic	Transportation	Total 1956	Total 1955	Operating ratio 1956	Operating ratio 1955	Net from railway operation	Railway tax accruals	Net railway operating income 1956	Net railway operating income 1955
Louisville & Nashville	April	4,732	15,211	794	17,370	3,446	2,496	832	240	3,596	1,992	777	376	6,233	13,432	5,467	77.3	158.6	3,938	2,712	2,257	390
	4 mos.	4,732	61,195	3,299	69,632	45,865	9,694	6,610	949	14,393	10,615	3,349	1,505	25,700	54,185	37,574	77.8	81.9	15,447	10,391	9,286	7,517
Maine Central	April	944	2,209	84	2,432	2,098	414	382	27	382	342	79	20	823	1,746	1,564	71.8	74.6	686	314	265	203
	4 mos.	944	8,743	323	9,602	8,558	1,615	1,586	101	1,540	1,316	303	90	3,401	7,087	6,347	73.8	74.2	2,515	1,110	994	877
Minneapolis & St. Louis	April	1,397	1,751	2	1,823	1,555	246	309	27	304	282	77	97	579	1,354	1,364	74.3	87.7	469	249	188	93
	4 mos.	1,397	6,627	10	6,895	6,401	990	1,106	106	1,145	1,100	304	400	2,408	5,501	5,309	79.8	82.9	1,393	811	522	433
Minneapolis, Northfield & Southern	April	77	363	....	384	363	20	67	2	34	31	10	23	86	193	215	50.1	59.2	192	97	81	55
	4 mos.	77	1,343	....	1,441	1,398	65	108	8	135	118	42	96	329	735	693	51.0	49.5	706	347	298	294
Minn., S. Paul & S. Ste. Marie	April	3,224	3,156	49	3,373	2,859	712	629	43	690	599	120	90	1,278	2,914	2,495	86.4	87.2	459	187	103	180
	4 mos.	3,224	12,777	191	13,623	10,781	2,503	2,220	183	2,721	2,333	489	361	5,397	11,562	9,866	84.9	91.5	2,061	975	722	189
Missouri-Illinois	April	172	546	....	549	509	58	53	6	53	79	30	10	116	250	274	45.6	53.8	299	153	150	131
	4 mos.	172	1,673	....	1,686	1,839	244	220	19	315	291	121	41	429	1,064	1,067	63.1	58.0	622	346	353	480
Missouri-Kansas-Texas Lines	April	3,241	5,344	212	6,105	5,965	928	843	100	1,038	841	257	279	2,385	4,926	4,549	80.7	76.3	1,179	443	383	581
	4 mos.	3,241	21,287	855	24,321	23,590	3,313	3,268	406	3,788	3,426	1,026	1,105	9,694	19,204	18,094	79.0	76.7	5,117	1,782	1,834	2,165
Missouri Pacific	April	9,701	22,241	853	25,290	23,964	4,003	4,247	253	4,343	4,405	996	642	9,032	18,972	18,828	75.0	78.6	6,319	2,011	3,322	3,003
	4 mos.	9,701	87,197	3,605	99,586	94,007	14,787	15,162	1,317	17,610	17,758	4,062	2,601	36,649	75,531	73,198	75.8	77.9	24,055	8,125	12,706	11,783
Monon	April	541	1,728	76	1,957	1,832	335	263	19	291	258	73	111	696	1,550	1,348	79.2	73.5	407	140	146	203
	4 mos.	541	6,764	267	7,631	7,131	1,309	1,063	77	1,153	1,056	292	416	2,802	6,194	5,486	81.2	76.9	1,437	506	491	660
Monongahela	April	177	644	....	647	478	75	61	16	53	56	11	1	206	352	290	54.4	60.5	295	33	135	45
	4 mos.	177	2,196	....	2,206	1,883	272	245	70	218	223	47	3	780	1,317	1,203	59.7	63.9	890	38	362	97
Nashville, Chatt. & St. Louis	April	1,043	2,665	93	3,074	441	532	130	47	455	311	141	119	1,195	2,419	988	78.7	224.2	654	362	247	—388
	4 mos.	1,043	10,448	501	12,265	7 922	1,984	1,275	192	1,732	1,467	557	493	4,714	9,418	6,828	76.8	86.2	2,847	1,489	1,251	410
New York Central	April	10,613	50,934	8,071	66,952	60,957	7,212	7,492	1,237	11,668	10,218	2,263	1,188	29,954	53,454	49,021	79.8	80.4	13,499	5,073	6,853	5,125
	4 mos.	10,613	199,039	32,876	261,694	238,866	25,397	25,852	4,679	44,717	39,908	8,964	4,820	120,928	209,912	189,033	80.2	79.1	51,782	22,128	20,514	21,550
Pittsburgh & Lake Erie	April	221	3,520	60	3,832	3,462	428	413	79	919	823	282	74	1,312	2,952	2,668	77.0	77.1	880	899	1,057	1,039
	4 mos.	221	13,242	261	14,410	12,522	1,782	1,596	311	3,728	3,091	1,124	287	5,212	11,843	10,208	82.2	81.5	2,567	3,306	3,736	3,848
New York, Chicago & St. Louis	April	2,178	13,873	134	14,414	12,674	1,845	1,560	149	2,363	2,041	385	349	5,189	10,194	8,873	70.7	70.0	4,220	2,054	1,715	1,578
	4 mos.	2,178	55,582	578	57,734	48,800	6,394	5,567	571	9,401	8,214	1,524	1,397	20,852	39,867	34,487	69.1	70.7	17,867	8,549	7,292	5,913
New York, New Haven & Hartford	April	1,769	8,024	4,245	13,892	12,846	1,610	1,469	255	2,084	1,908	379	257	6,011	10,864	9,875	78.2	76.9	3,028	955	657	1,249
	4 mos.	1,769	30,167	16,352	52,544	49,495	6,195	5,846	1,050	9,543	7,313	1,568	1,124	24,691	45,289	39,658	86.2	80.1	7,255	3,820	—2,153	3,839
New York Connecting	April	21	353	....	378	402	76	57	25	15	11	....	....	89	183	162	40.2	40.4	196	86	102	164
	4 mos.	21	1,459	....	1,561	1,578	284	296	101	44	84	....	....	358	699	766	44.7	48.6	863	351	494	432
New York, Ontario & Western	April	541	496	....	510	455	124	113	17	86	84	22	26	271	538	497	105.6	109.4	—29	42	—159	—161
	4 mos.	541	1,909	....	1,963	1,822	426	417	70	366	352	89	102	1,097	2,101	1,985	107.0	109.0	—138	168	—638	—605
New York, Susquehanna & Western	April	120	404	46	468	508	56	58	6	57	60	13	10	199	356	376	76.0	73.9	112	35	36	41
	4 mos.	120	1,535	183	1,793	2,088	220	218	22	236	242	51	38	803	1,440	1,479	80.3	70.8	353	101	94	199
Norfolk & Western	April	2,126	18,695	260	19,881	16,879	2,606	2,083	301	4,238	3,313	722	365	5,754	13,783	11,136	69.3	66.0	6,098	3,823	3,208	3,135
	4 mos.	2,126	72,343	1,087	76,944	61,794	10,267	8,672	1,331	16,970	13,005	2,849	1,411	23,432	54,982	44,231	71.5	71.6	21,962	13,980	11,449	9,545
Norfolk Southern	April	604	899	....	913	850	197	181	13	125	123	30	47	258	717	653	78.5	76.8	196	83	57	55
	4 mos.	604	3,400	....	3,455	3,315	750	687	51	475	495	119	193	1,063	2,734	2,574	79.1	77.6	722	328	219	224
Northern Pacific	April	6,865	13,245	460	14,687	13,771	2,257	1,978	293	2,901	2,571	605	438	6,041	12,486	11,299	85.0	82.1	2,201	1,306	1,040	1,326
	4 mos.	6,865	51,657	1,942	57,588	53,697	7,589	6,959	1,072	11,971	10,464	2,299	1,486	24,409	48,908	44,754	84.9	83.3	8,679	5,393	3,467	4,477
Northwestern Pacific	April	329	1,312	....	1,323	1,259	252	269	17	109	96	4	8	382	787	743	59.5	59.0	535	209	141	151
	4 mos.	329	3,593	....	3,617	4,698	675	1,144	68	364	382	16	26	1,212	2,378	2,992	65.8	63.7	1,239	396	162	415
Pennsylvania	April	10,006	66,998	10,092	85,342	74,268	8,618	7,631	1,395	17,720	15,071	2,905	1,360	36,989	68,711	59,705	80.5	80.4	16,632	5,920	7,570	6,886
	4 mos.	10,006	250,832	41,351	323,119	285,552	33,441	30,211	5,666	65,880	57,510	11,324	5,565	145,683	266,885	233,972	82.6	81.9	56,234	22,861	21,515	22,654
Penn-Reading Seashore Lines	April	358	701	105	828	736	215	220	84	125	116	25	11	472	865	847	104.5	115.0	—37	84	—290	—319
	4 mos.	358	2,487	360	2,919	2,714	828	794	187	477	437	93	43	1,941	3,449	3,191	118.2	117.6	—530	336	—1,464	—1,265
Piedmont & Northern	April	128	460	....	468	335	47	48	6	29	27	11	28	81	215	199	45.9	59.6	253	124	84	40
	4 mos.	128	1,979	....	2,017	1,751	178	180	19	121	115	43	112	334	872	819	43.2	46.8	1,146	569	380	318
Pittsburgh & West Virginia	April	132	804	....	807	678	107	104	25	134	112	37	72	205	570	499	70.6	73.6	237	128	122	114
	4 mos.	132	3,074	....	3,089	2,560	416	411	103	545	472	147	285	835	2,285	1,970	74.0	76.9	804	412	441	365
Reading	April	1,306	10,250	604	11,553	9,558	1,389	1,142	185	2,158	1,816	431	175	4,349	8,524	7,247	73.8	75.8	3,029	1,601	1,267	1,190
	4 mos.	1,306	41,203	2,374	46,389	37,836	5,495	4,379	749	8,534	7,156	1,709	729	18,196	34,890	28,906	75.2	76.4	11,498	5,166	4,994	4,739

REVENUES AND EXPENSES OF RAILWAYS

(Dollar figures are stated in thousands; i.e., with last three digits omitted)

MONTH OF APRIL AND FOUR MONTHS OF CALENDAR YEAR 1956

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1956	Total (inc. misc.) 1955	Operating Expenses: Maint. Way and Structures: Total 1956	Total 1955	Deprec. and Retirements	Maint. Equipment: Total 1956	Total 1955	Deprec. and Retirements	Traffic	Transportation	Total 1956	Total 1955	Operating ratio 1956	Operating ratio 1955	Net from railway operations	Railway tax accruals	Net Railway operating income 1956	Net Railway operating income 1955
Richmond, Fredericksburg & Potomac	April	118	1,588	516	2,440	2,401	230	277	24	313	350	67	27	773	1,492	1,508	61.1	62.8	948	447	353	300
	4 mos.	118	6,168	2,151	9,615	9,143	924	1,177	96	1,266	1,330	269	100	3,125	6,009	6,167	62.4	67.4	3,606	1,824	1,269	911
Rutland	April	391	428	....	460	373	79	67	9	50	49	16	28	153	343	307	74.4	82.4	118	27	70	19
	4 mos.	391	1,612	....	1,742	1,528	350	312	43	207	211	57	109	617	1,398	1,310	80.3	85.7	343	108	134	23
Sacramento Northern	April	347	154	....	162	217	83	49	4	11	17	6	2	67	177	148	108.9	68.1	—14	14	—50	37
	4 mos.	347	616	....	650	782	346	239	17	55	66	22	9	275	741	630	114.0	80.5	—91	61	—212	22
St. Louis-San Francisco	April	4,610	9,223	327	10,272	10,749	1,499	1,456	166	1,733	1,832	545	420	3,816	8,044	7,962	78.3	74.1	2,227	1,192	1,055	1,363
	4 mos.	4,610	36,094	1,408	40,375	39,948	6,059	5,625	668	6,825	6,794	2,170	1,574	15,323	32,121	30,352	79.6	76.0	8,254	4,315	3,919	4,614
St. Louis, San Francisco & Texas	April	155	348	4	374	445	36	63	4	35	35	1	27	149	259	319	69.3	71.8	115	35	14	30
	4 mos.	155	1,423	14	1,528	1,682	172	181	16	141	127	4	109	597	1,071	1,088	70.1	64.7	457	135	75	172
St. Louis Southwestern Lines	April	1,561	5,599	11	5,789	5,516	713	625	67	663	576	120	193	1,752	3,519	3,118	60.8	56.5	2,270	1,003	930	857
	4 mos.	1,561	22,554	59	23,327	20,847	2,835	2,552	283	2,636	2,343	469	752	7,063	14,058	12,445	60.3	59.7	9,269	4,234	3,901	3,133
Savannah & Atlanta	April	144	325	....	342	258	59	40	2	46	42	14	14	89	220	177	64.2	68.6	122	37	55	38
	4 mos.	144	1,271	....	1,324	1,161	214	175	6	176	180	55	63	358	857	752	64.7	64.8	467	150	210	196
Seaboard Air Line	April	4,062	11,978	1,179	14,347	13,454	2,117	2,174	196	2,662	2,451	592	392	4,557	10,323	9,776	72.0	72.7	4,024	1,645	2,020	1,993
	4 mos.	4,062	48,295	4,891	57,908	54,276	8,560	8,812	782	10,256	9,475	2,321	1,575	18,615	41,380	38,899	71.5	71.7	16,529	6,517	8,489	8,366
Southern Railway	April	6,289	20,254	1,142	23,087	24,124	3,063	2,869	306	4,201	3,961	816	442	7,094	15,879	15,401	68.8	63.8	7,208	2,897	3,942	4,155
	4 mos.	6,289	82,345	4,703	93,647	90,812	12,066	11,163	1,076	16,387	15,111	3,247	1,730	28,544	62,981	58,958	67.3	64.9	30,666	13,580	15,450	14,766
Alabama Great Southern	April	326	1,303	42	1,479	2,237	322	258	28	309	321	60	37	472	1,230	1,210	83.2	54.1	249	112	160	435
	4 mos.	326	5,341	193	6,068	6,821	1,023	927	126	1,233	1,193	240	148	1,912	4,684	4,476	77.2	65.6	1,384	618	732	1,116
Cinn., New Orleans & Texas Pac.	April	337	3,470	131	3,845	4,998	547	590	64	614	659	147	78	841	2,248	2,570	58.5	51.4	1,597	874	806	1,014
	4 mos.	337	13,278	557	14,670	15,938	2,318	2,104	274	2,538	2,485	587	300	3,549	9,390	9,141	64.0	57.4	5,280	2,884	2,793	3,016
Georgia Southern & Florida	April	475	780	68	932	1,040	226	260	10	75	87	10	27	266	646	773	69.3	74.4	286	43	85	—2
	4 mos.	475	3,069	262	3,641	3,661	962	1,074	42	331	312	39	105	1,071	2,687	2,839	73.8	77.5	954	174	149	—143
New Orleans & Northeastern	April	204	1,010	34	1,127	1,079	70	199	23	152	178	43	22	242	549	699	48.7	64.8	579	362	223	129
	4 mos.	204	3,631	140	4,081	3,816	612	706	85	583	580	171	90	943	2,484	2,476	60.9	64.9	1,596	1,040	608	497
Southern Pacific	April	8,114	38,521	2,240	43,070	41,671	5,404	4,974	496	9,467	8,458	2,024	893	17,271	35,198	32,391	81.7	77.7	7,872	3,302	3,591	4,173
	4 mos.	8,119	150,098	9,651	169,115	160,969	21,213	19,618	1,873	35,651	33,334	7,948	3,692	67,824	137,186	126,352	81.1	78.5	31,929	13,918	14,670	16,027
Texas & New Orleans	April	4,314	10,849	399	11,914	11,075	2,131	1,872	247	1,701	1,450	187	306	4,145	8,927	7,904	74.9	71.4	2,987	1,204	716	804
	4 mos.	4,314	42,505	1,546	46,689	43,323	8,579	7,335	782	6,830	5,688	752	1,182	16,493	35,584	31,414	76.2	72.5	11,105	4,078	2,790	3,005
Spokane International	April	150	341	....	349	279	79	28	2	28	27	10	7	77	205	139	58.7	49.9	144	54	65	63
	4 mos.	150	1,180	....	1,217	1,118	238	181	10	114	111	39	25	308	741	626	60.8	55.9	476	161	215	220
Spokane, Portland & Seattle	April	947	2,605	66	2,849	2,443	397	422	44	433	381	114	34	892	1,859	1,798	65.3	73.6	990	238	658	358
	4 mos.	947	9,533	277	10,452	9,767	1,460	1,513	211	1,695	1,588	455	135	3,754	7,473	6,918	71.5	70.8	2,980	985	1,608	1,378
Tennessee Central	April	286	427	....	437	539	78	83	4	66	78	20	15	119	305	367	69.7	68.1	133	25	70	66
	4 mos.	286	1,748	41	1,830	1,733	325	299	21	291	256	81	61	527	1,320	1,263	72.1	72.9	510	102	207	147
Texas & Pacific	April	1,831	5,905	282	6,712	6,421	1,026	1,025	91	993	986	255	209	2,372	4,959	4,682	73.9	72.9	1,753	567	785	684
	4 mos.	1,831	24,335	1,137	27,620	26,587	4,274	3,951	381	3,927	3,877	1,013	833	9,462	19,914	9,624	72.1	70.0	7,705	2,454	3,502	3,183
Texas Mexican	April	161	313	....	335	285	55	42	6	31	27	10	11	62	179	157	53.4	55.3	156	69	55	47
	4 mos.	161	978	....	1,067	994	200	181	23	122	110	39	42	283	724	647	67.8	65.1	343	142	89	109
Toledo, Peoria & Western	April	239	669	....	677	618	100	73	6	52	57	12	54	160	403	376	59.5	60.9	274	117	87	76
	4 mos.	239	2,566	1	2,598	2,249	400	303	26	197	229	46	206	610	1,567	1,429	60.3	63.5	1,031	453	338	249
Union Pacific	April	9,804	35,242	2,012	39,993	38,540	6,237	5,932	487	7,568	6,972	1,697	1,279	13,536	30,730	29,295	76.8	76.0	9,263	4,959	3,093	3,036
	4 mos.	9,805	139,346	8,400	158,689	152,300	22,183	20,881	1,864	31,719	29,572	6,761	4,654	55,735	122,829	115,163	77.4	75.6	35,859	19,942	10,647	11,111
Virginian	April	611	4,302	....	4,478	3,462	436	428	63	678	680	201	51	857	2,127	1,934	47.5	55.9	2,351	1,279	1,274	900
	4 mos.	611	17,096	1	17,867	13,568	1,807	1,731	275	2,453	2,833	799	210	3,537	8,416	7,929	47.1	58.4	9,451	5,155	5,033	3,174
Wabash	April	2,393	8,446	364	9,633	9,503	1,135	1,223	142	1,293	1,327	374	347	4,149	7,349	7,039	76.3	74.1	2,284	843	853	1,030
	4 mos.	2,393	33,824	1,509	38,548	36,722	4,304	4,372	509	5,444	5,124	1,493	1,373	16,524	29,383	27,653	76.2	75.3	9,165	3,297	3,304	3,697
Ann Arbor	April	294	811	3	820	799	87	83	7	139	135	32	31	332	612	584	74.6	73.2	208	98	78	94
	4 mos.	294	3,103	3	3,130	2,926	302	298	27	562	535	107	122	1,398	2,463	2,336	78.7	79.8	666	329	224	247
Western Maryland	April	846	4,156	6	4,397	3,703	632	540	50	720	626	218	114	1,328	3,044	2,623	69.2	70.8	1,353	722	898	763
	4 mos.	846	16,491	18	17,469	14,400	2,425	2,100	161	3,101	2,447	882	444	5,580	12,528	10,282	71.7	71.4	4,941	2,445	3,281	2,750
Western Pacific	April	1,192	4,207	186	4,480	4,626	712	800	83	631	615	199	233	1,448	3,293	3,152	73.5	68.1	1,188	356	724	766
	4 mos.	1,192	15,831	664	16,884	16,291	2,959	3,092	324	2,500	2,476	793	858	5,805	13,185	12,413	78.1	76.2	3,700	1,180	2,233	2,057
Wisconsin Central	April	1,042	2,509	30	2,688	2,483	610	494	39	437	374	93	78	1,033	2,277	1,985	84.7	79.9	411	160	87	234
	4 mos.	1,042	9,829	116	10,479	9,422	1,573	1,340	161	1,689	1,502	355	315	4,246	8,508	7,378	79.3	78.3	2,171	644	763	891

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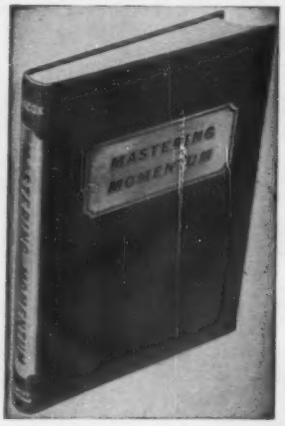

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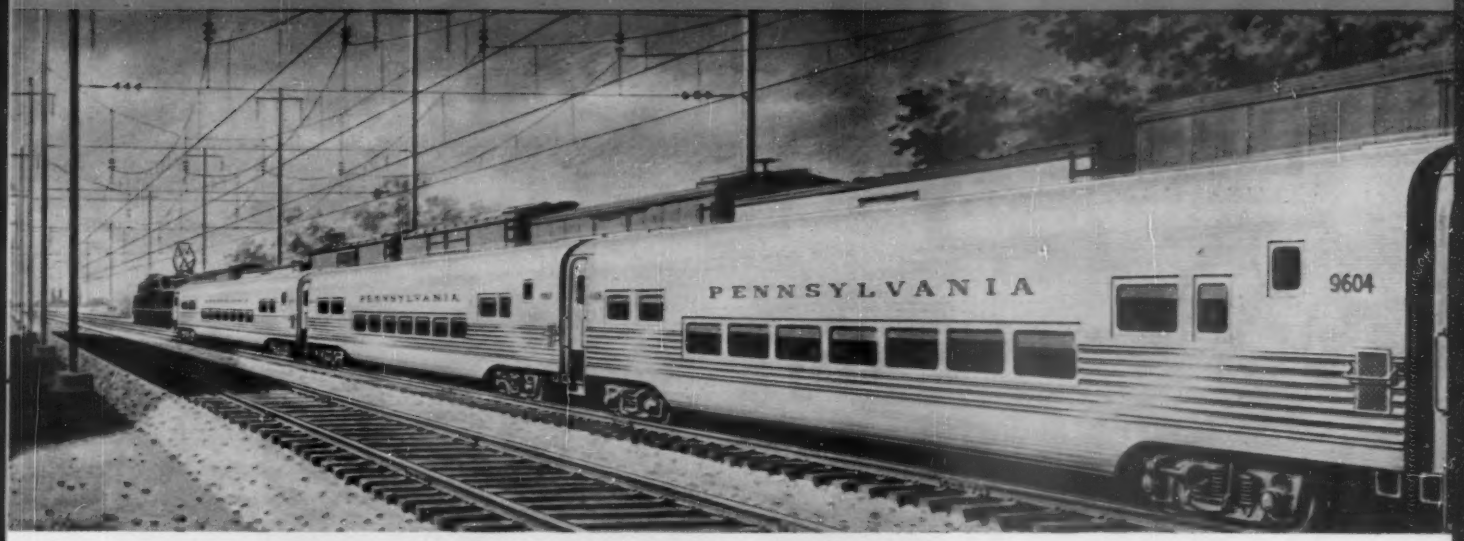

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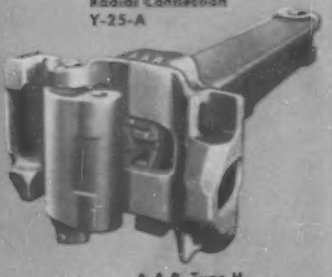

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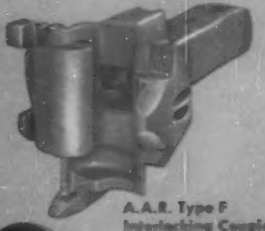

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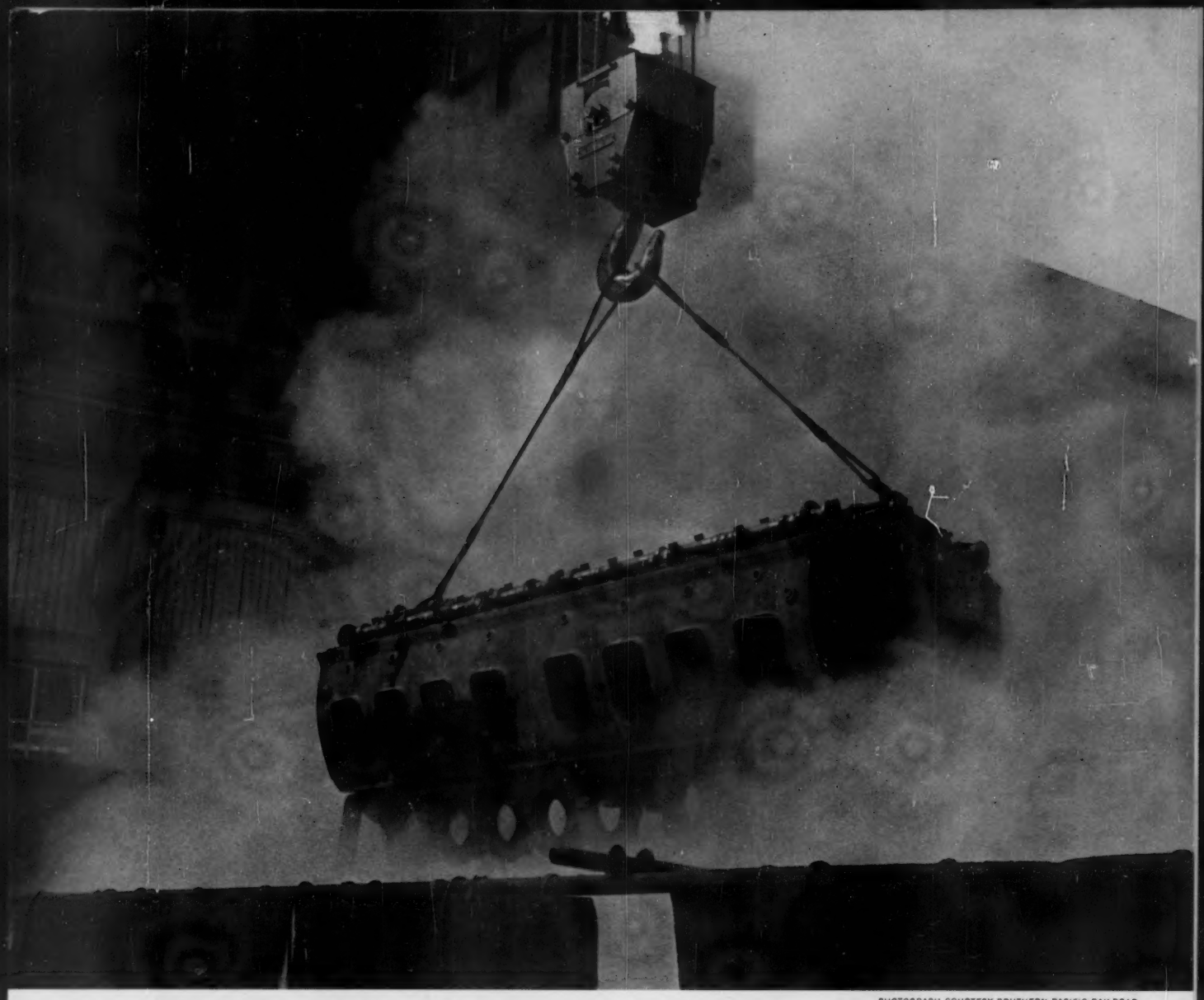

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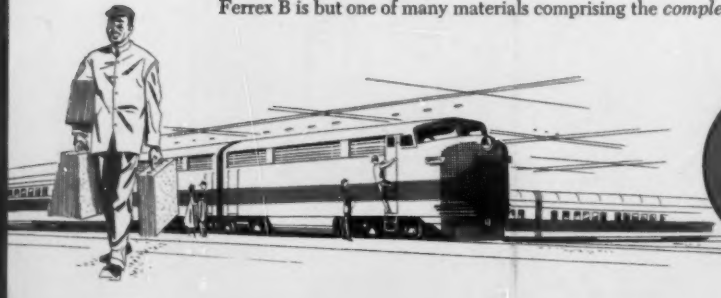

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